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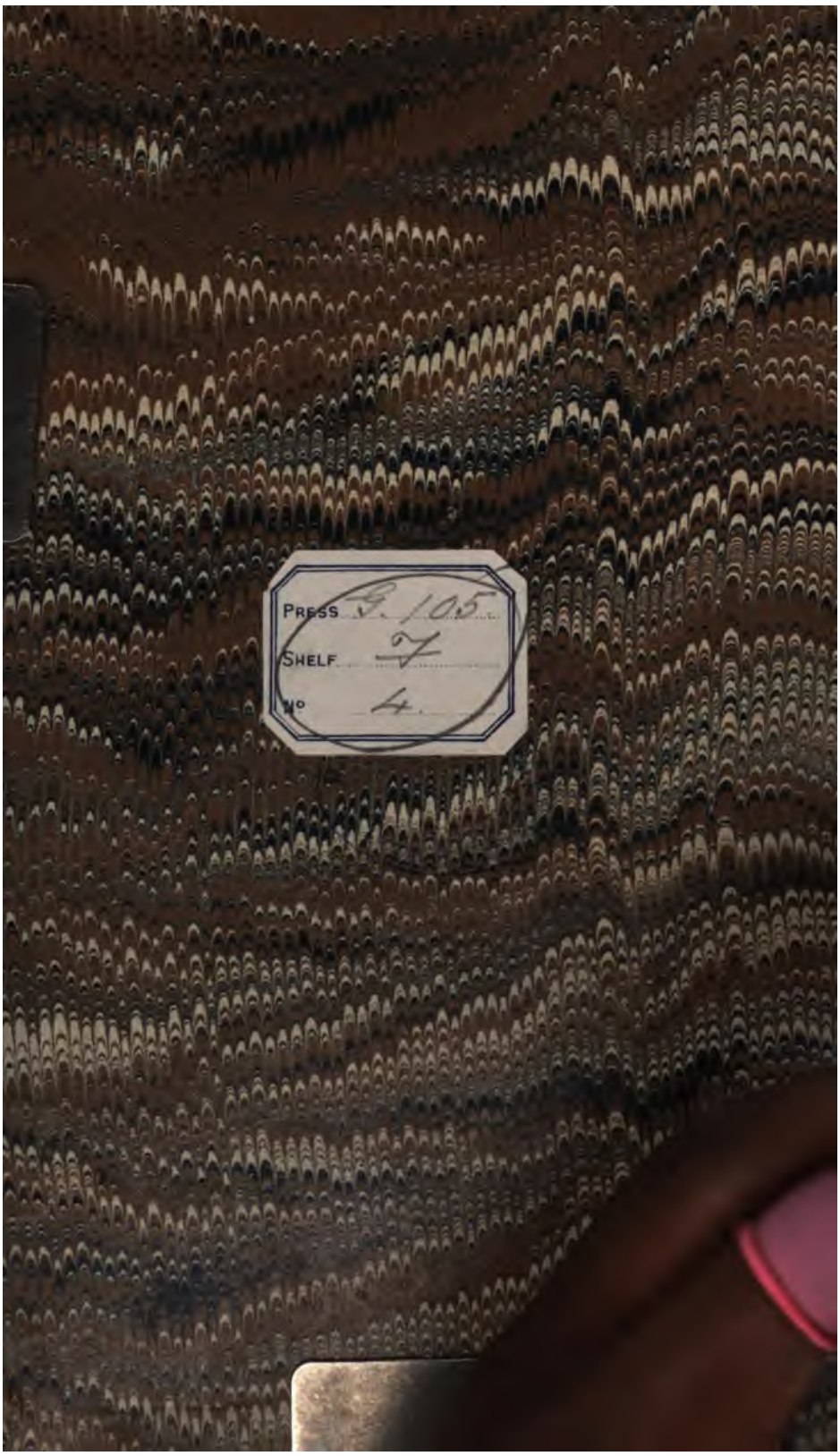
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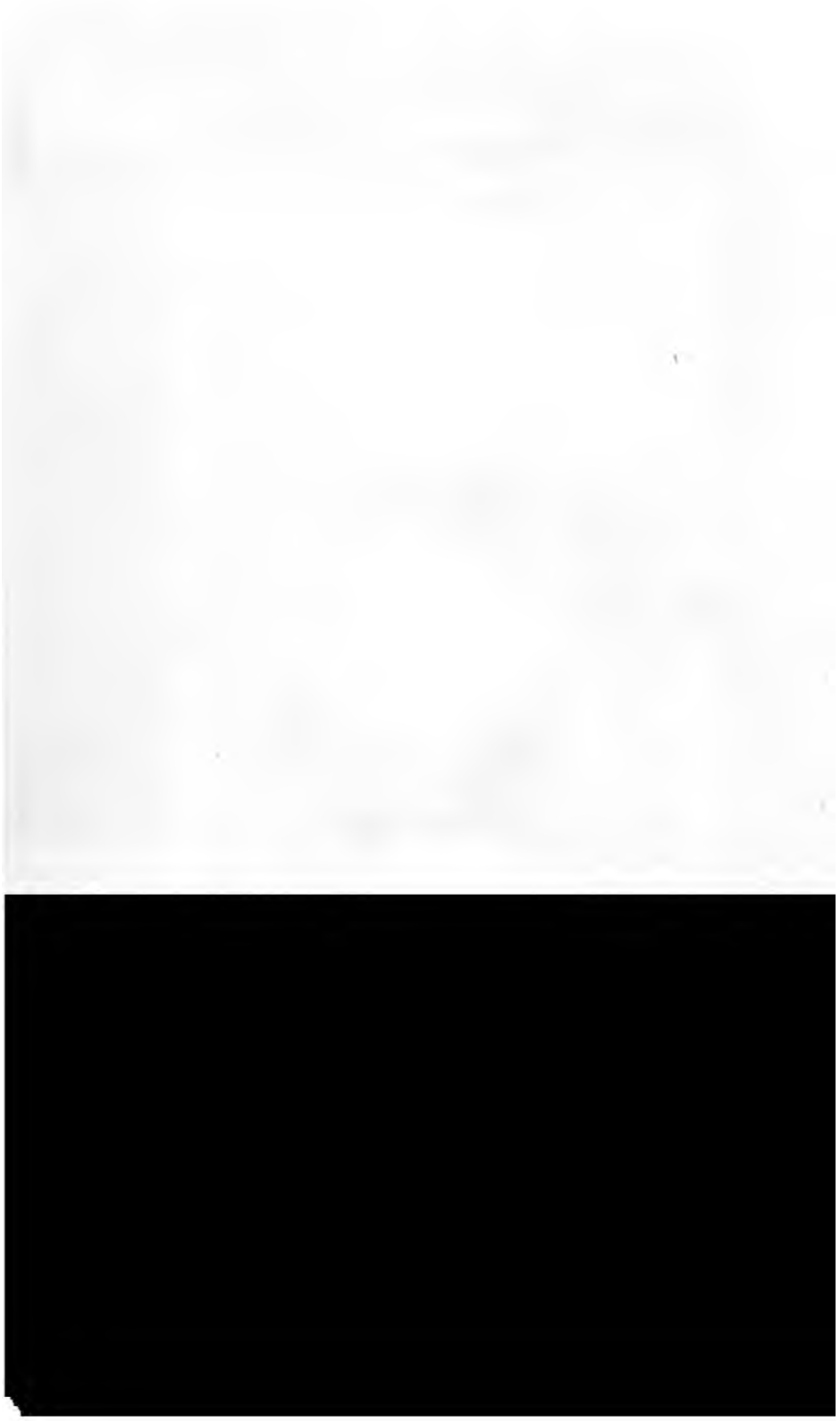


THE

TERRESTRIAL

AIR-BREATHING MOLLUSKS

OF

THE UNITED STATES, &c.

THE

TERRESTRIAL

AIR-BREATHING MOLLUSKS

OF

THE UNITED STATES,

AND THE

ADJACENT TERRITORIES OF NORTH AMERICA:

DESCRIBED AND ILLUSTRATED BY

AMOS BINNEY.

EDITED BY

AUGUSTUS A. GOULD.

VOL. III. PLATES.

BOSTON:
LITTLE, BROWN AND COMPANY.
MDCCCLVII.

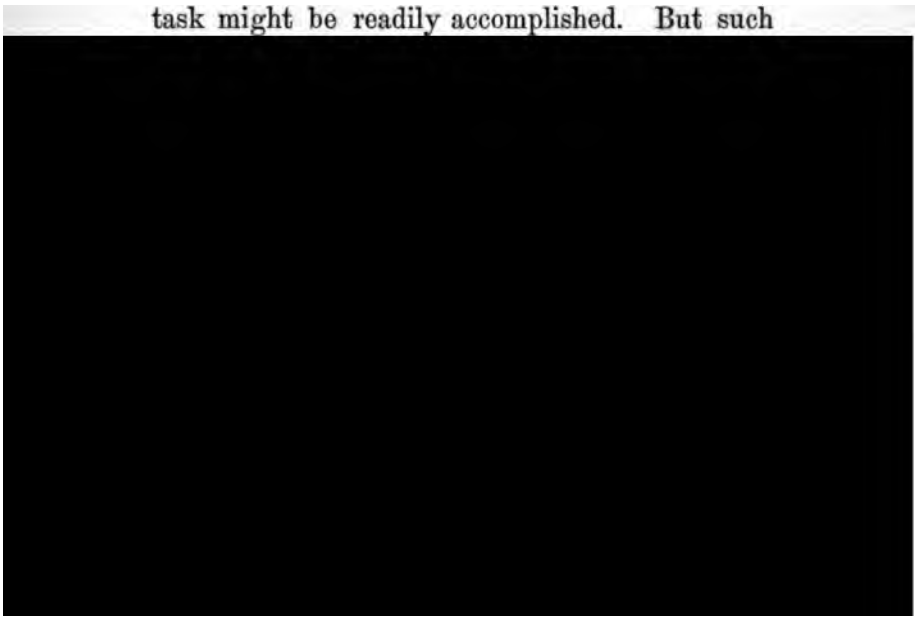
21 APR 1936

PRELIMINARY REMARKS.

In November, 1834, Dr. Binney began reading, to the Boston Society of Natural History, a series of papers, entitled "A Monograph of the Helices inhabiting the United States," and published them in successive numbers of the Journal, dating from May, 1837, to April, 1843. These were illustrated by colored lithographic figures, in most instances representing both the animal and the shell. This attempt tended to show him how imperfect were the conceptions either he or any one else had formed of the extent and interest of this special fauna; and led him to conceive the design of remodelling the whole work, and of issuing it, at his own expense, as a contribution to science, with new illustrations, in a style which should not be surpassed by any other publication. To obtain ample materials for fulfilling the project as he had designed it, he employed a collector for

two winters, who traversed Florida, Alabama, Tennessee, Arkansas, and Texas, and brought home many new species, of types imperfectly known. The first volume, containing the Anatomy, Physiology, and General History of the Family, was then put in print; still, new information was constantly accumulating, and he resolved again to remodel it, adding also the Histology of the animals.

He had not advanced far before his health began to fail him; and he went to Europe, for the double purpose of invigoration and of superintending the execution of the engravings which remained to be done. His death in Rome soon followed, (February, 1847;) and, as already stated in the first volume, he requested and provided that the work should be completed by some other hand. It was supposed that this task might be readily accomplished. But such



in the death of the artist Lawson, of Philadelphia, who fully understood the views of the author, and whose exquisite engravings are unsurpassed by any thing of the kind extant. The remaining plates were undertaken by Delarue, of Paris, who was almost equally skilled and successful. But he, too, died, and the work was continued by artists trained by him; their success was but indifferent, and some of the plates are so poorly engraved and colored that they are admitted with great reluctance, and nothing but the dread of further delay has deterred from having them executed again. In justice to ourselves, we must say, that our intentions to have the work carried out as it was begun were most sincere, and our efforts to succeed have been most unwearied. For the serial irregularities in the numbering of the plates, and for erroneous references from the text to the figures, we must express extreme regret, but will attempt no apology.

Meantime, new explorations have brought to light new species, and have, in many instances, induced modifications of the views expressed concerning species previously known. Especially may this be said in relation to explorations

in the regions bordering on the Pacific. No extended remarks, however, will be here attempted, as it is judged best that the work should represent, as it does, the state of knowledge at the time when it was written. And we leave it thus the less reluctantly, as we are happy to know that the tastes and purpose of the father have descended to the son, from whom we may hope to receive, in due time, a critical emendation and amplification of this Monograph, as the fruit of his exhaustive research in the same field of investigation.

It has been thought proper, however, to insert in this volume the description of one species, which was accidentally omitted in its place; and also to give the descriptions of several other North American species, which have been recently published, so as to embody all the species at present known. Nearly all of them we have

DESCRIPTIONS

OF

ADDITIONAL SPECIES.

HELIX BUCCULENTA, GOULD.

PLATE XI a.

T. subglobosâ, vix perforatâ, concinnè striatâ, luteo-corneâ; anfractibus quinque rotundatis; aperturâ sub-circulari; peristomate albo reflexo; palati interdum unidentati.

SYNONYMS AND REFERENCES.

H. bucculenta, GOULD, Proceed. Boston Soc. Nat. Hist. III. 40. June, 1848.

DESCRIPTION.

ANIMAL, not examined.

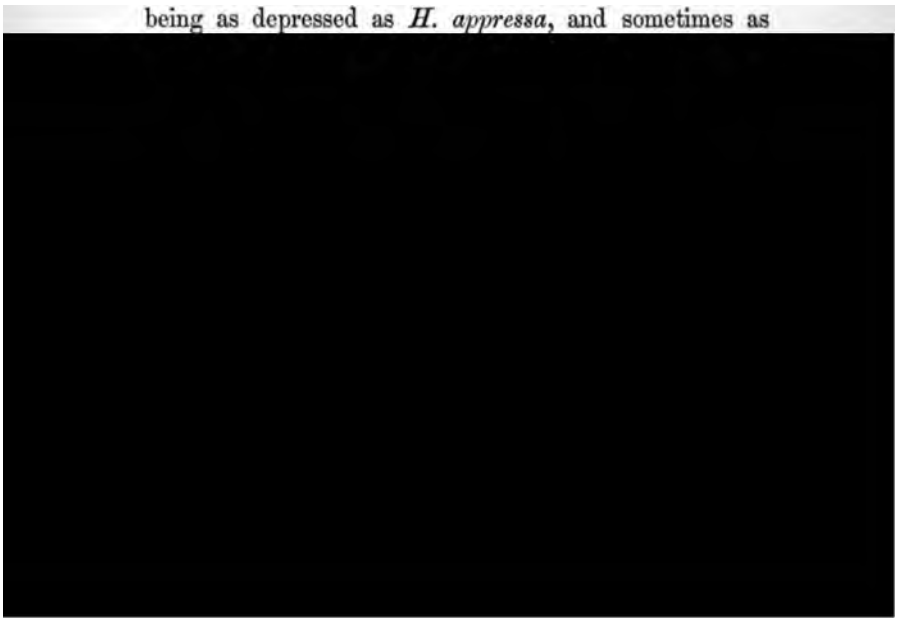
SHELL. Globose-conic, more or less elevated, rather thin, shining, pale yellowish green, surface regularly and

delicately furrowed by the striæ of growth. Whorls five or a little more, rounded, and separated by a well-impressed suture; base convex; aperture rounded; peritreme forming nearly two thirds of a circle, rather broadly reflexed, white, somewhat flesh-colored behind, not completely covering a small umbilical perforation. The palate sometimes bears a small white tooth at the middle, but oftener not.

Diameter, three fifths of an inch; axis, from three to five tenths of an inch.

GEOGRAPHICAL DISTRIBUTION. The Southern States, from Georgia to Texas.

REMARKS. This is a very neat shell, intermediate in its size and characters between *H. thyroidus* and *H. clausa*. It is smaller than the former, and very often possesses a palatal tooth much like it. It is larger and darker colored than *H. clausa*, which never has a tooth in the aperture. It varies widely in elevation, sometimes being as depressed as *H. appressa*, and sometimes as



HELIX DEVIA, GOULD.

Testa orbiculato-depressa, obliquè striata, dilutè fusco-cornea, umbilico modico canaliculato perforata; spira anfractibus sex convexis, ultimo ad peripheriam rotundato; apertura transversa, obliquè lunata, ad anfractum penultimum unidentata, dente trigono; labro albo, latè reflexo, ad basim horizontali, umbilicum aliquanto ambiente.

SYNONYMS AND REFERENCES.

H. devia, GOULD; Proc. Bost. Soc. Nat. Hist. II. 165. Aug. 1846; Mollusca of the Exploring Expedition, p. 69, fig. 74.
PFEIFFER, Monog. Helic. I. 383.
H. Baskervillei, PFEIF., Proc. Zool. Soc. 1849.
REEVE, Conch. Icon. fig. 684.

SHELL solid, depressed globose, pale yellowish horn color, or brown, with fine lines of growth. Whorls six, convex, suture well defined. Beneath slightly convex, and perforated by a moderate-sized umbilicus, which appears to have an obtuse channel revolving on the whorls within it. Periphery rounded. Aperture transverse, obliquely lunate; lip white, or sometimes rufous, rather broadly reflected, horizontal at base, the inner edge dilated into an elongated, lamellar, white process, and abruptly turning up to form a short columella, where it dilates, and partly surrounds the umbilicus. Near the upper margin, and on the penultimate whorl, is a white trigonal tooth.

Diam. $\frac{4}{5}$ inch; axis, $\frac{9}{20}$ of an inch. Found at Puget's Sound, and in Oregon.

It has the form of *H. Townsendiana*, without its indented surface. It also closely resembles the southern form of *H. palliata*, or still more, a small *H. elevata*.

HELIX RAMENTOSA, GOULD.

T. suborbicularis, depressa, tenuis, perforata, fulva fasciâ fuscâ albo-marginatâ ad peripheriam cincta, lineis incrementalibus et sulcis decussantibus pariter obliquis granulata; anfr. 5½ convexiusculis, ultimo obtusè angulatò; sutura valdè impressa: apertura obliquè oblongo-ovata; peritremate posticè acuto, sensim versus umbilicum reflexo, albo; fauce rufescente.

SYNONYMS AND REFERENCES.

Helix ramentosa, GOULD, Proc. Bost. Soc. Nat. Hist. (Oct. 1856,) VI. 11.

AXIS, half an inch; diameter, four fifths of an inch.

Habitat, California. In the Cabinet of Dr. W. Newcomb.

Agrees well with *H. zonata*, Pfr., in which the umbilicus is represented larger, and no allusion is made to the peculiar rasp-like decussation.

DIAM. $1\frac{3}{5}$ poll.; axis, $\frac{4}{5}$ to $\frac{8}{10}$ poll.

Brought from San Francisco by Dr. Bigelow and by Mr. Samuels.

With the general form and coloring of *H. Townsendiana* it has the aperture of *H. tudiculata*. The former has a different aperture, revolving striæ, and is destitute of a band; the latter is not umbilicated; neither have a granulated surface.

HELIX INFUMATA, GOULD.

Testa magna, discoidea, biconvexa, ad peripheriam obtusè carinata, latè umbilicata, supra infumata et rugis minutis obliquis asperata, infra nigerrima, nitida et minutissimè granulata; anfract. $6\frac{1}{2}$ convexiusculis: apertura rhomboidea; labro rufo, basi reflexiusculo; fauce sericeâ, lilacinâ, propè labrum fuscescente.

SYNONYMS AND REFERENCES.

Helix infumata, GOULD, Proc. Bost. Soc. Nat. Hist. (Feb. 1855,) V. 137.

DIAM. $1\frac{1}{2}$; axis, $\frac{4}{5}$ poll.

Brought from San Francisco by Dr. Bigelow.

It has the form and color of *H. plicata*, Born, without its complicated aperture. It might, at first, be mistaken for *H. Nuttalliana*, but is distinguished by its lenticular form, smoky black color, and its peculiar rasp-like granulated surface.

HELIX OREGONENSIS, LEA.

Testa subcarinata, tenuis, lævis, rufo-fusca, ad carinam bifasciata, supernè subconvexa, infernè subinflata.

SYNONYMS AND REFERENCES.

H. Oregonensis, LEA, Trans. Amer. Philos. Soc. VI. 100, read July, 1837:
PFEIFFER, Monog. Helic. II. 339.
Obs. on Genus Unio, etc. II. 100, pl. 23, f. 85.

THE above description is confessedly defective, as the specimens described were immature; but they were evidently, on comparison, the young of the following, the description of which fully represents the species. The two should therefore be united, with the prior name, *H. Dupetithouarsii*, Desh.

Testa umbilicata, orbiculato-convexa, lævigata vel substriata, saturatè castanea, supernè pallidior, nigrescenti-rufo cingulata; spira conoideo-obtusa; anfr. 7–8 angusti, convexiusculi, ultimus inflatus; apertura ovato-semilunaris, intus alba, fasciata; peristoma simplex, brevissimè reflexum, margine columellari arcuato, supernè dilatato-reflexo, umbilicum mediocrem non occultante.

SYNONYMS AND REFERENCES.

Helix Dupetithouarsii, DESHAYES, Révue Zool. 1839, p. 360.
GUERIN, Mag. 1841, tab. 30.
CHEMN., 2d ed. 319, tab. 56, f. 3–5.

quinque convexiusculi, ultimus vix descendens, basi parum convexus; apertura rotundato-lunaris, intus fuscescens; peristoma acutum, intus sublabiatum, margine columellari breviter arcuato, unidentato, dilitato, reflexo, perforationem ferè tegente.

SYNONYMS AND REFERENCES.

Helix areolata, SOWERBY, Brit. Mus.
PFEIF. in Zeitschr. f. Malak. 1845, p. 154;
Monog. Helic. I. 152.
PHILIPPI, Icon. II. 15, tab. 9, f. 4.
CHEMN., ed. 2, No. 226, tab. 36, f. 10–13.

DIAM. maj. 26, min. 23; alt. 18 mill.
Hab. In Oregon and California.

HELIX PANDORÆ, FORBES.

H. testâ obtectè perforatâ, depresso-globosâ, tenui, rugulosâ, concentricè minutissimè striatâ, anfractibus (5) supra peripheriam fuscis (vel violaceis) infra et propè peripheriam albidis fusco cingulatâ basi albidis; aperturâ rotundatâ intus fuscâ albido fasciatâ, margine interno incrassato, albo; peristomate reflexiusculo, extus albo-labiato, margine columellari dilatato, reflexo, umbilicum occultante.

SYNONYMS AND REFERENCES.

H. Pandoræ, FORBES, Proc. Zool. Soc. 1850, p. 55, pl. 9, fig. 3 a, b.
H. damascenus, GOULD, Proc. Bost. Soc. Nat. Hist. Oct. 1856, VI. 11.

DIAM. max. 17, min. 16; alt. 14 mill.
Forbes gives the "Vicinity of the Straits of Juan del

Fuaco" as the *habitat*, though he previously says that the box was labelled "Santa Barbara." The specimens I saw from the collection of Dr. Newcomb came from the "desert region east of California;" so that I have no doubt the southern locality is the true one. My specimens were larger than those given above, and were in many respects like *H. alauda;* and I unfortunately described them before noticing the Zoological Proceedings.

HELIX EXIGUA, STIMPSON.

Testa minuta, discoidea, pellucida, corneo-viridescens, supra convexiuscula, infra concava; anfrac. $3\frac{1}{2}$ convexis, spiraliter striatis, et [apice excluso] costis longitudinalibus remotis strias incrementi obliquè decussantibus instructis; anfractu ultimo rotundato; sutura impressa; umbilico lato: apertura rotundata; labro simplici.

SYNONYMS AND REFERENCES.

Helix exigua, STIMPSON, Proc. Bost. Soc. Nat. Hist. III. 175, Jan. 1850.

SYNONYMS AND REFERENCES.

Helix tridentata, var. BINN. in Bost. Journ. III. p. 382, tab. 18, f. 2.
FERUSSAC, Hist. tab. 51, f. 3, parva ad sinistram.

DIAM. maj. 13, min. 11; alt. 6 mill.

Hab. Propè Hopeton, Georgia, copiosissimè.

Obs. Differt ab H. fallaci, umbilico angustiori vix pervio, colore saturatiori, peristomate minus incrassato et dentibus inter se magis remotis. Huc forsan pertinet figura Chemn., ed. 2, t. 64, f. 7–9 ad fallacem laudata. Variat quoad dimensiones; specimina duplo fere minora occurrunt.

HELIX RUGELI, SHUTTLEWORTH.

Testa obtectè perforata, orbiculato-convexa, granulato-striata, parcè setosa, corneo-cerea; spira brevis, obtusa; anfr. 5½, convexiusculi, ultimus anticè subitò deflexus, ad aperturam valdè constrictus; apertura depressa, dente valido linguiformi flexuoso in pariete aperturali intrante coarctata; perist. reflexum, intus callosum, margine dextro dente magno obtuso profundè immerso

et angulatim flexuoso, et dente supero marginis dextri peristomatis crasso et valde immerso.

HELIX MORDAX, Shuttleworth.

Testa latè et perspectivè umbilicata, depressa, sublenticularis, carinata, tenuis, luteo-cornea, strigis rufis interruptis fasciatim ornata, costis validis flexuosis remotis utrinque eximiè asperata; anfr. 5½, plani; apertura perobliqua, angulatim lunari-ovalis; perist. simplex, acutum.

Diam. maj. 18, min. 16; alt. 6 mill.

Hab. in mont. Carolinæ Septent.; specimina ultra 12 legit Rugel. Diam. maj. 7½, min. 6½; alt. 3 mill.

Obs. H. alternatæ valdè affinis, sed costis validioribus, ad 1 mill. inter se remotis, distincta. H. Cumberlandiana, Lea, (forsan merè forma monstruosa) quàcum carina congruit, differt (ex icone) teste tantum tenuiter striata nec costata.

ZONITES PLACENTULA, Shuttleworth.

Testa apertè umbilicata, depressissima, arctispira, nitidissima, striis distantibus irregularibus impressis notata, cornea, diaphana, subtus concolor; anfr. 7, lentissimè accrescentes, vix convexiusculi, ultimus subtus convexus, ad umbilicum subexcavatus; apertura obliqua, lunaris; peristoma simplex, acutum.

Hab. in Tennessee, Amer. Sept., specimina pauca legit Rugel.

Obs. Z. demissa, Binn. affinis, sed testa depressiore, umbilico latiore, et præsertim absentia calli albi opaci in fundo anfractus ultimi distinctissima.

ZONITES MACILENTA, Shuttleworth.

Testa latè et perspectivè umbilicata, depressa, arctispira, corneo-flavescens, diaphana, supernè striata vix nitida, subtus læviuscula, nitida, concolor; spira depressissimè rotundata, obtusa; anfr. 8 lentissimè accrescentes, subconvexi, ultimus in fundo callo albo subdentiformi profundè intrante præditus; apertura lunari-semicircularis; perist. simplex, acutum.

Diam. maj. 8, min. 7⅓; alt. 3 mill.

Hab. in Tennessee orientali, semel legit Rugel.

Obs. Species instructiva, forma cohortem "Patula" Held, callo dentiformi "Gastrodonta" Albers (H. suppressa, Say, etc.) testæ textura autem Zonitis sectionem "Hyalina Fer." referens.

HELIX UVULIFERA. Shuttleworth.

DIAM. maj. 12, min. 11; alt. 7 mill.

Hab. In Insulis parvis "Long Keys," sinu dicto "Sarazota" Florida Austr. (Rugel.)

Obs. Specimina numerosissima examinavi. Proxime H. auriculatæ affinis, sed textura, colore, ac apertura minus coarctata, peristomateque minus producto satis distincta. H. Ariadne Pfr. in Chemn. ed. 2, tab. 65, f. 29–31, etiam affinis, at differt figura testæ tantum rimata sine vestigio perforationis. Nomen specificum ab apicula lamellæ marginis dextri peristomatis, uvulæ humanæ haud dissimili, assumptum, sed character hic in omnibus speciebus affinibus plus minusve obvius est.

The preceding six species were described in a series of pamphlets, entitled "Diagnosen neuer Mollusken." These are found in No. 2.

HELIX BARBIGERA, REDFIELD.

Testâ imperforatâ, acute carinatâ, lenticulari, tenuisculâ, corneo-fuscâ, epidermide supernè striis asperatâ, quæ ad suturam et carinam in ciliis productæ sunt: basi convexâ: spirâ convexiusculâ: anfractibus 5½, subplanis, ultimo subitò paululum deflexo: aperturâ perobliquâ, transversâ, auriformi, dente modico linguiformi obliquè intrante in toto pariete aperturali coarctatâ: peristomate calloso, marginibus incrassatis et reflexiusculis, basali subsinuato, integro.

SHELL imperforate, sharply carinate, rather thin, dark horn-colored or brown: the upper surface has the epi-

dermis raised into acute striæ, which at the suture and carina are produced into short cilia or bristles; these epidermidal striæ are sometimes seen beneath, but less distinctly, being often obsolete in the mature shell; basal surface convex, but indented in the umbilical region; spire slightly convex; whorls five and a half, rather flat, last one suddenly but slightly deflected; aperture very oblique, transverse, ear-shaped, narrowed by a rather slender, tongue-shaped tooth, which extends nearly across the whole width of the aperture; peristome callous, margins slightly but distinctly reflected, and thickened within, basal margin slightly arcuate, but entire.

Diam. maj. 10 mill.; diam. min. 9 mill.; alt. 6 mill.

Habitat. Habersham County, Georgia, where it was collected by Bishop Elliott. Northwestern Georgia, Mr. Pierce.

Remarks. Smaller and more delicate than *H. spinosa;* striæ more numerous, thickly set with fine ciliæ, which project at the periphery in a fine fringe, and not like short triangular aculei, as in *Spinosa*. The umbi-

HELIX ELLIOTTI, REDFIELD.

Testâ angustè umbilicatâ, orbiculato-depressâ, striatulâ, virente-corneâ, subdiaphanâ, subtus nitidâ; spirâ convexâ, parùm elatâ; anfractibus quinque, convexiusculis, ultimo vix depresso; suturâ impressâ; aperturâ obliquâ, lunato-circulari; peristomate sinuato, acuto, intùs incrassato.

SHELL with rather a narrow umbilicus, depressed-orbiculate, with fine transverse striæ, greenish horn-colored, hardly translucent, shining beneath; spire convex but not much raised: whorls five, rather convex, last one sometimes very slightly depressed at the aperture; suture deeply impressed; aperture very oblique, lunate-circular, peristome a little sinuate, acute, but thickened within.

Diam. maj. 9 mill.; diam. min. 8 mill.; alt. 4 mill.

Habitat. Mountains of Georgia and North Carolina, where it was collected by Bishop Elliott in great abundance, under the bark of decayed stumps and logs.

REMARKS. It is larger and more solid than *H. arborea*, with a less spreading umbilicus and more oblique aperture. In general form, it is more like a large *H. indentata*. It also has relations to *H. placentula*, but has fewer whorls. It may be most readily recognized by its transverse aperture, and thickened, somewhat sinuous lip.

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HELIX MAJOR Binney, p. 96.

PLATE II.

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PLATE III.

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PLATE VI.

Fig. 1. HELIX NICKLINIANA Lea. *H. Californiensis*, Reeve, Conch. Icon. f. 661. The centre figure is regarded as a variety, but may be a distinct species. p. 119.

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PLATE VIII.

HELIX HORTENSIS Müller, represents the plain, unbanded variety, (*H. sub-globosa*, Binney.) To the cis-Atlantic localities I am able to add "head of St. George's Bay, Newfoundland," whence I have received four differently banded varieties, (1854.) p. 111.

PLATE IX.

PLATE XI a.

HELIX SUCCULENTA Gould.

By some unfortunate arrangement of the copy, the description of this species was wholly omitted in the text. It is incidentally alluded to on pages 91 and 109. The omission may be partly remedied by the insertion of the description here. See page 9.

PLATE XII.

HELIX DENTIFERA Binney, p. 134.

PLATE XIII.

HELIX APPRESSA Say, p. 140.

PLATE XIII a.

HELIX DIVESTA Gould. This species appears in the text, under the name of *H. abjecta*, which name had been previously employed by Lowe (Fauna Maderensis) for a Madeira shell. The above name is therefore substituted. On page 135, at the bottom, for *abjecta* read *divesta*. p. 122.

PLATE XIV.

HELIX PALLIATA Say, with the animal. The lingual hooklets following the description, page 139, are those of *Tebennophorus Carolinensis*. p. 136.

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HELIX PALLIATA Say, the carinate variety, (*Caracolla helicoides*, Lea.) p. 138.

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PLATE XX.

PLATE XXII a.

Fig. 1. HELIX SPORTELLA Gould, p. 211.

Fig. 2. HELIX LUCIDA Drap. p. 233.

Found also on the banks of the Mohawk, and near Columbus, Ohio, by Mr. J. Bartlett.

Fig. 3. HELIX EGENA Say, p. 245.

The lingual hooklets placed after the description, p. 246, are unknown.

PLATE XXIII.

HELIX SAYI Binney, p. 180.

PLATE XXIV.

HELIX SOLITARIA Say, p. 208.

The lingual hooklets at the end of the description, p 209, are those of *H. pulchella*.

PLATE XXV.

HELIX ALTERNATA Say, p. 212. Lingual hooklets, p. 215.

PLATE XXVI.

HELIX CUMBERLANDIANA Lea, p. 216.

PLATE XXVI a.

HELIX STRIGOSA Gould, p. 210.

PLATE XXVII.

HELIX TRIDENTATA Say. The vertical series repre-

sents specimens from the Western States; the lateral figures represent New England forms. The lingual hooklets are represented after the description, page 185. p. 183.

PLATE XXVIII.

HELIX TRIDENTATA Say. This plate represents the form called by Mr. Say *Helix fallax*. p. 183.

PLATE XXIX.

Fig. 1. HELIX ELECTRINA Gould, p. 236.
Fig. 2. HELIX INDENTATA Say, p. 242.
Fig. 3. HELIX ARBOREA Say, p. 235.
Fig. 4. HELIX CELLARIA Müller, p. 230.

PLATE XXIX a.

Fig. 1. HELIX CAPSELLA Gould, p. 239.
Fig. 2. HELIX LORICATA Gould, p. 145.
Fig. 3. HELIX OTTONIS Pfeiffer, p. 238.
Fig. 4. HELIX SAXICOLA Pfeiffer, p. 174.

PLATE XXX.

PLATE XXXII.

HELIX LUCUBRATA Say. Reeve seems to have taken this for *H. fuliginosa*. Conch. Iconica, fig. 675. p. 225.

PLATE XXXIII.

HELIX SUBPLANA Binney, p. 229.

PLATE XXXIV.

HELIX INORNATA Say. Lingual hooklets, after the description undetermined. p. 227.

PLATE XXXV.

HELIX LIGERA Say. Lingual hooklets appended are unknown. p. 204.

PLATE XXXVI.

HELIX INTERTEXTA Binney, p. 206.

PLATE XXXVII.

Fig. 1. HELIX SUPPRESSA Say, p. 253.
Fig. 2. HELIX LASMODON Phillips. Accompanying lingual hooklets undetermined. p. 254.
Fig. 3. HELIX GULARIS Say, small variety, p. 250.
Fig. 4. HELIX GULARIS Say, large typical form, p. 250.

PLATE XXXVIII.

HELIX SEPTEMVOLVA Say. The vertical series represents the typical form. The lateral figures represent the

small variety. A lamellar fold, beginning about one fourth of a volution within the aperture, and running somewhat obliquely about half a volution along the columellar side, has not hitherto been specified in descriptions, though it has been noticed by several observers; and distinguishes this shell from *H. paludosa*, and other West Indian species. p. 196.

PLATE XXXIX.

Fig. 1. HELIX SEPTEMVOLVA Say. The small convex variety. p. 198.

Fig. 2. HELIX PLICATA Say, (should be *H. fatigiata* Say,) p. 193.

Fig. 3. HELIX PUSTULA Say, p. 201.

Fig. 4. HELIX FATIGIATA Say. The large, flattened, carinated variety. p. 195.

PLATE XL.

Fig. 1. HELIX AURICULATA Say. The mature shell. p. 186.

Fig. 2. HELIX AURICULATA Say. The young shell, described by Say under the name of *Helix avara*. Lingual hooklets. p. 189.

figures, with the closed umbilicus, represents the variety separated by Mr. Say, under the name of *H. fraterna.* The second series represents the *H. Leai*, Ward MS. The third and fourth represent different sizes of the typical form. p. 147.

PLATE XLII.

Fig. 1. HELIX DEMISSA Binney, p. 232.
Fig. 2. HELIX MOBILIANA Lea, p. 172.
Fig. 3. HELIX HIRSUTA Say. Small, subglobular form. p. 150.
Fig. 4. HELIX HIRSUTA Say. Large, discoidal form. Lingual hooklets. p. 152.

PLATE XLIII.

HELIX BUFFONIANA Pfeiffer. This plate was unfortunately lettered "Helix aspersa," before it was discovered to be different from that shell. p. 115.

PLATE XLIV.

Fig. 1. HELIX SPINOSA Lea, p. 153.
Fig. 2. HELIX EDGARIANA Lea, p. 155.

PLATE XLV.

Fig. 1. HELIX TEXASIANA Moricand, p. 191.
Fig. 2. HELIX INFLECTA Say, (lettered fig. 3, in text,) p. 143.
Fig. 3. HELIX INFLECTA Say. Regarded as the young of fig. 2. Probably *H. triodonta*, Jan.

PLATE XLVI.

HELIX POLYCHROA Binney, (erroneously lettered

"H. rhodocheila" on the plate.) Varieties ζ, η, ϑ, ι. p. 123.

PLATE XLVII.

HELIX POLYCHROA Binney, ("H. rhodocheila," erroneously.) Varieties, α, β, γ, δ, ε. p. 124.

PLATE XLVIII.

Fig. 1. HELIX LINEATA Say, p. 261; (in text, pl. 68.) Lingual hooklets, p. 262.

Fig. 2. HELIX SELENINA Gould, (in the text, pl. 29 a, f. 2,) p. 240.

Since the printing of the text, a description of this shell by Dr. Binney, under the name of *H. tenuistriata*, has been discovered on the cover of the Boston Journal of Natural History, Vol. IV. No. 1, 1842. It appears also to be identical with *H. vortex* Pfeiffer, (1839,) of several West India Islands.

Fig. 3. HELIX MULTIDENTATA Binney, (in text, pl. 68,) p. 258.

The cut following the description represents the lingual hooklets of *H. labyrinthica*.

PLATE XLIX.

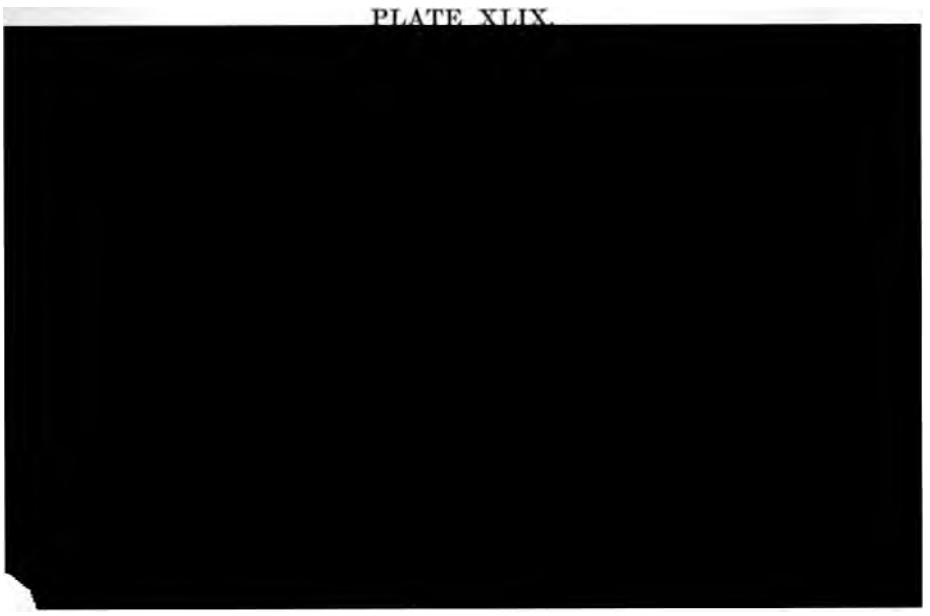


PLATE LI.

Fig. 1. BULIMUS DEALBATUS Say. The typical form. p. 276.

Fig. 2. BULIMUS DEALBATUS. The variety described by Say as *Bulimus alternatus*, Say. p. 277.

PLATE LI a.

BULIMUS DEALBATUS Say. A thickened, elongated form from Texas, the *Bulimus lactarius*, Menke. p. 277.

PLATE LI b.

BULIMUS DEALBATUS Say. A heavy blanched shell, from Southern and Western Texas and New Mexico, apparently the same as *Bulimus Scheidianus*, Pfeiffer. p. 277.

PLATE LII.

Fig. 1. BULIMUS FALLAX Gould, p. 288.

Fig. 2. PUPA MODICA Gould, p. 319.

Fig. 3. BULIMUS HARPA Say, p. 290.

Fig. 4. BULIMUS LUBRICUS Müller, p. 283.

PLATE LIII.

Fig. 1. BULIMUS EXIGUUS Say, p. 286.

Fig. 2. ACHATINA PELLUCIDA Pfeiffer. Found living, by Mr. Bland, on dead leaves and sticks floating in brackish water, Island of St. Thomas.

Fig. 3. ACHATINA GRACILLIMA Pfeiffer, p. 293.

Fig. 4. BULIMUS SUBULA Pfeiffer, p. 285.

PLATE LIV.

BULIMUS ZEBRA Müller. Common forms, young and old. The large variety, with the animal, intended for PLATES LII., LIII., have been omitted. p. 271.

PLATE LV.

BULIMUS FASCIATUS Müller. A solid, nearly colorless variety, described by Mr. Say as *Achatina solida*, young and old. p. 266.

PLATE LVI.

BULIMUS FASCIATUS. Varieties. p. 268.

PLATE LVII.

BULIMUS FASCIATUS. The variety described as *Achatina crenata*, by Swainson. p. 268.

PLATE LVIII.

BULIMUS VIRGULATUS Férussac, p. 278.

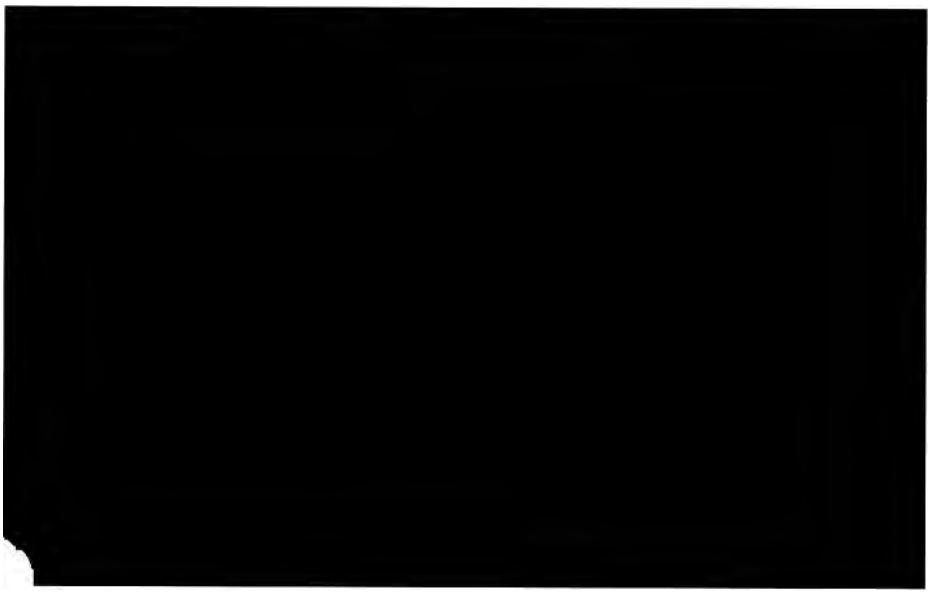


PLATE LXI.

GLANDINA TRUNCATA Say. Elongated varieties. p. 301.

PLATE LXII.

Fig. 1. GLANDINA VANUXEMENSIS Lea, p. 299.
Fig. 2. GLANDINA TRUNCATA Say. Outline of a fusiform variety. p. 301.

PLATE LXII a.

GLANDINA BULLATA Gould, p. 298.

PLATE LXIII.

Fig. 1. TEBENNOPHORUS CAROLINIENSIS Bosc, p. 20.
Fig. 2. TEBENNOPHORUS CAROLINIENSIS. Convolutions of the surface. Lingual booklets. p. 139.
Fig. 3. TEBENNOPHORUS DORSALIS Binney, p. 24.

PLATE LXIV.

Fig. 1. ARION HORTENSIS Férussac, p. 27.
Fig. 2. LIMAX AGRESTIS Müller, p. 36.
Fig. 3. LIMAX CAMPESTRIS Binney, p. 41.

PLATE LXV.

Fig. 1. LIMAX VARIEGATUS Draparnaud. The lateral figures represent the manner in which the eggs are strung together. p. 34.
Fig. 2. ARION HORTENSIS Férussac, young specimens. p. 27.

PLATE LXVI.

Fig. 1. LIMAX COLUMBIANUS Gould, p. 43. With a front view of the head, the form of the calcareous element, and the anterior portion of the body when contracted. The wood-cut following the description represents the lingual hooklets of *Helicina orbiculata*, p. 352.

Fig. 2. ARION FOLIOLATUS Gould, with magnified patch of the foliated surface, p. 30.

PLATE LXVII.

VAGINULUS FLORIDANUS Binney, p. 17.

PLATE LXVII a.

Fig. 1. VITRINA PELLUCIDA Müller, (*V. limpida*, Gould,) p. 55.

Fig. 2. SUCCINEA CONCORDIALIS Gould, p. 82.

Fig. 3. SUCCINEA OVALIS Gould, p. 78.

Fig. 4. SUCCINEA NUTTALLIANA Lea, p. 81.

PLATE LXVII b.

Fig. 1. SUCCINEA CAMPESTRIS Say, p. 67.

PLATE LXVIII.

PUPA MARITIMA Pfeiffer, p. 316. (The plate is lettered "Pupa incana;" see text, p. 313.)

PLATE LXIX.

Fig. 1. CYLINDRELLA PONTIFICA Gould, twice the natural size, p. 306.

Fig. 2. CYLINDRELLA LACTARIA Gould, middle figure; the tip magnified. p. 309.

Fig. 3. CYLINDRELLA JEJUNA Gould, central figure; base magnified, p. 320.

PLATE LXX.

Fig. 1. PUPA RUPICOLA Say, p. 341. Wood-cut of aperture magnified, p. 342.

Fig. 2. PUPA CONTRACTA Say, p. 324. Wood-cut of aperture magnified, p. 326.

Fig. 3. PUPA BADIA Adams, p. 323. Wood-cut of aperture magnified, p. 324.

Fig. 4. PUPA ARMIFERA Say, p. 320. Wood-cut of aperture magnified, p. 322.

PLATE LXXI.

Fig. 1. VERTIGO MILIUM Gould, p. 337. Wood-cut of aperture magnified, p. 338.

Fig. 2. VERTIGO GOULDII Binney, p. 332. Wood-cut of aperture magnified, p. 333. (In text, "LXXII." by mistake.)

Fig. 3. PUPA DECORA Gould, p. 327.

Fig. 4. VERTIGO OVATA Say, p. 334. Wood-cuts of aperture enlarged, p. 336.

PLATE LXXII.

Fig. 1. PUPA PENTODON Say. Wood-cut of the aperture magnified, p. 330. That at the right represents the *P. Tappaniana* of Adams; that at the left, the *P. curvidens*, Gould. By error, it is referred to PLATE LXII. in the text. p. 328.

Fig. 2. PUPA VARIOLOSA Gould, p. 331.

Fig. 3. PUPA SIMPLEX Gould. The animal to which the wood-cut at the end of the text refers, is unknown. p. 343.

Fig. 4. PUPA CORTICARIA Say, p. 339. Wood-cuts of the aperture magnified, p. 340.

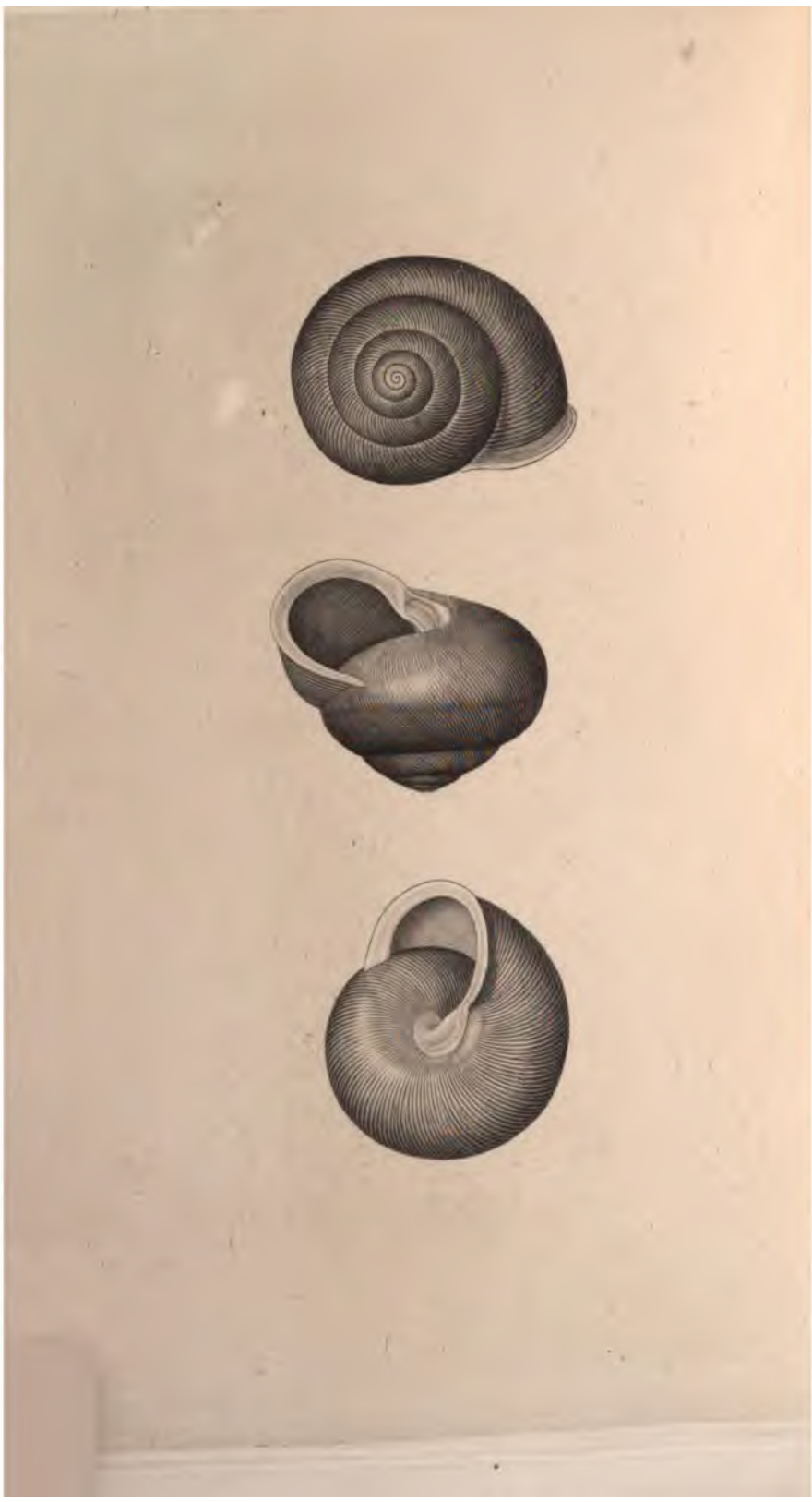
PLATE LXXII a.

CYCLOSTOMA DENTATUM Say, p. 348. (Erratum in text, "LXXII.")

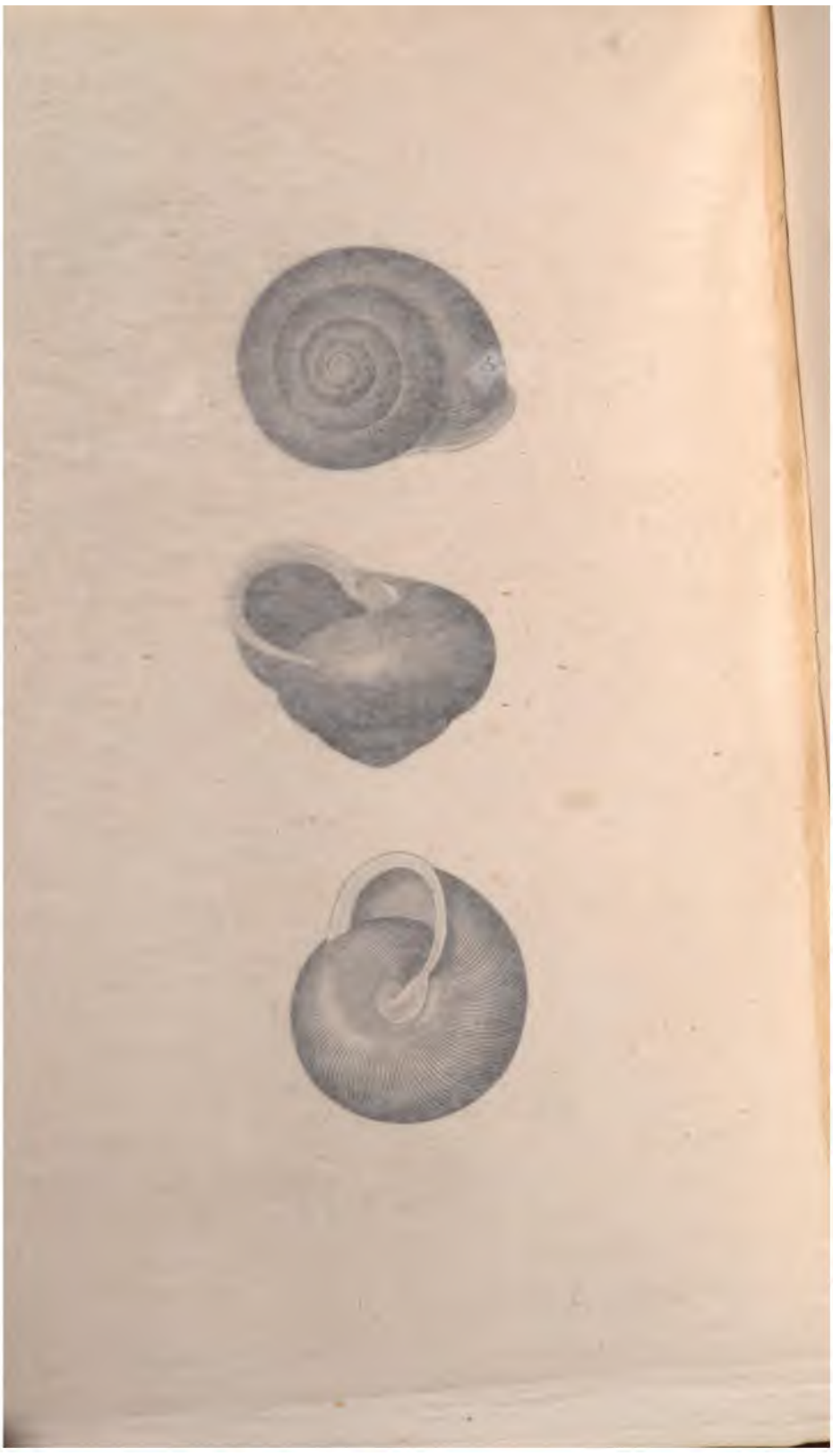
PLATE LXXIII.

HELICINA ORBICULATA Say, several varieties, p. 352. Lingual hooklets magnified, p. 44.

PLATE LXXIV.



Helix major.

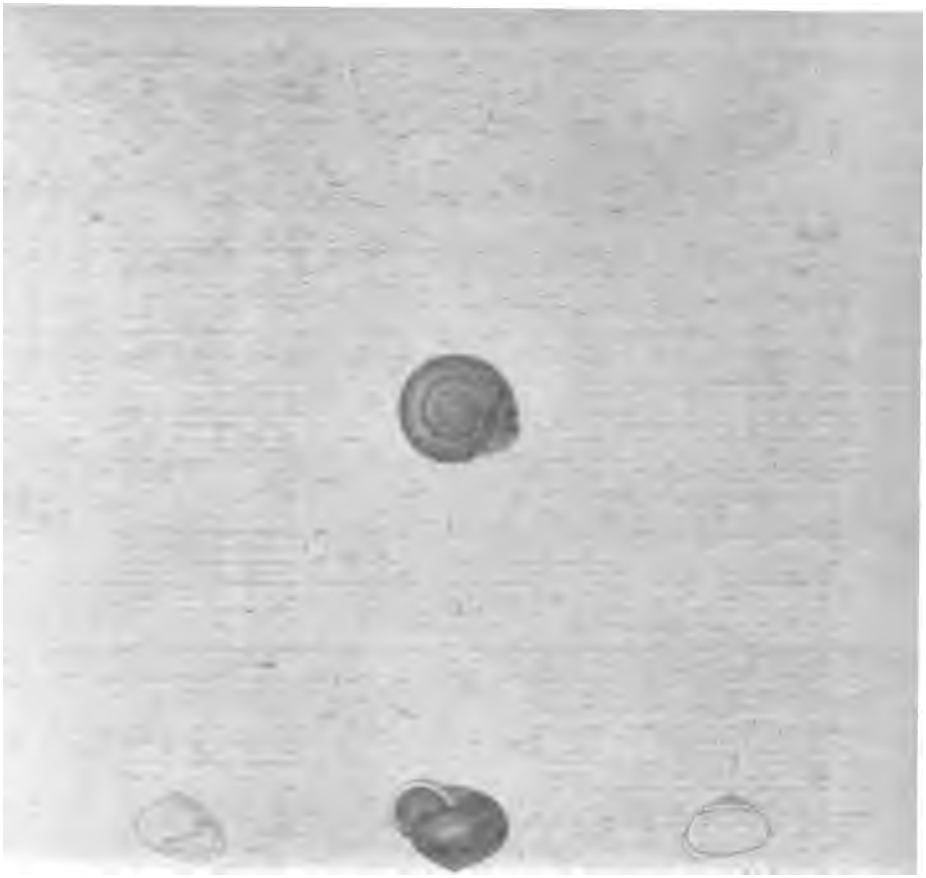


Helix major.

Helix albolabris.—*Say.*

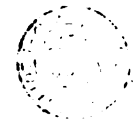
Helix multilineata Say.

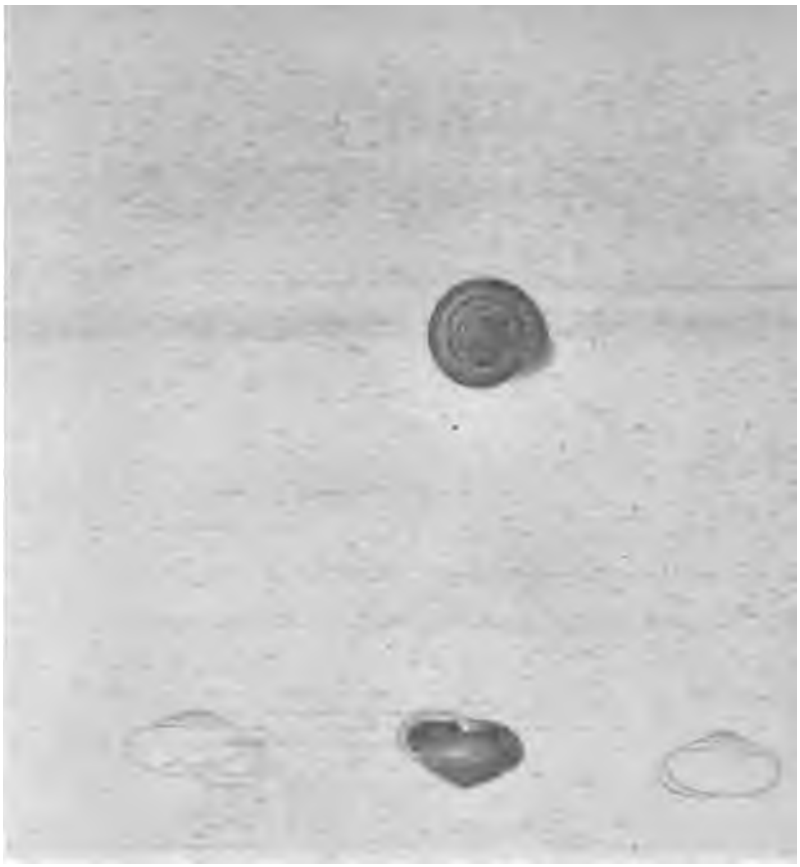
Helix multilineata, Say.

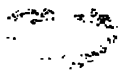


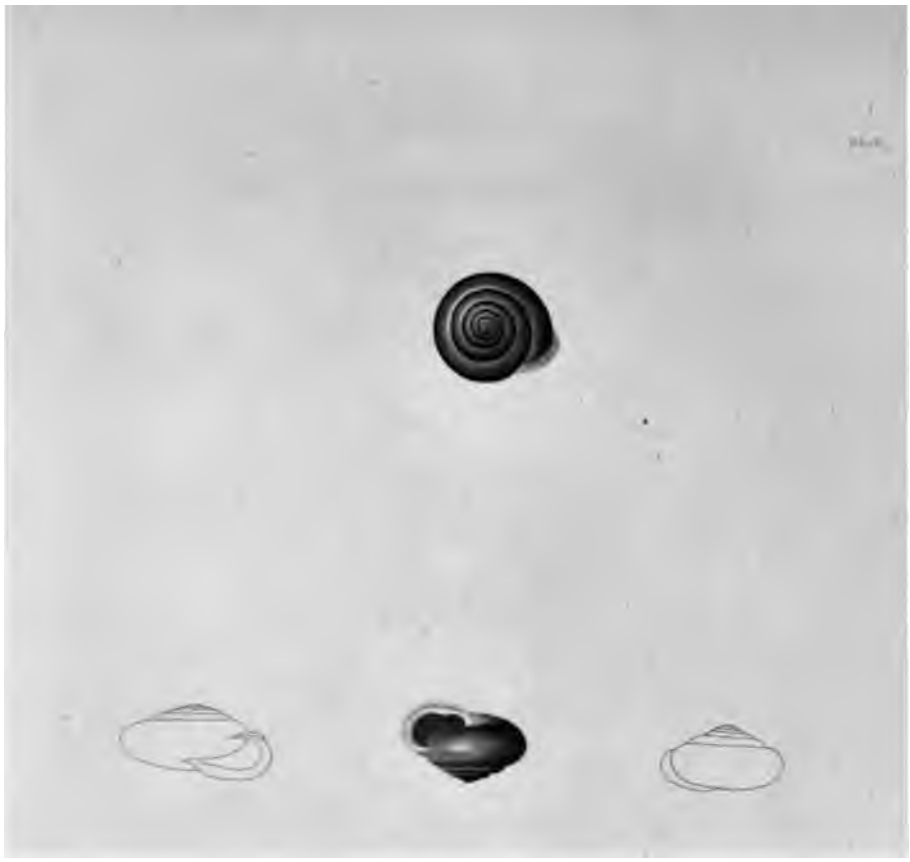
Helix Jansii, Say

Helix clausa, Say.

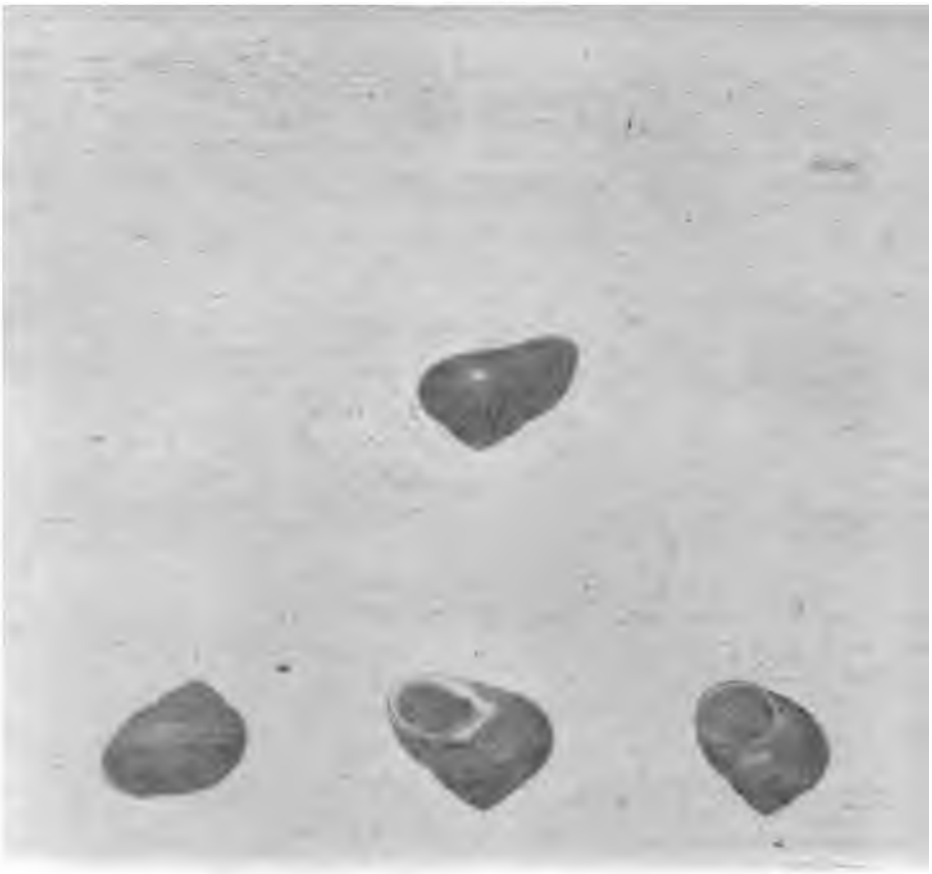




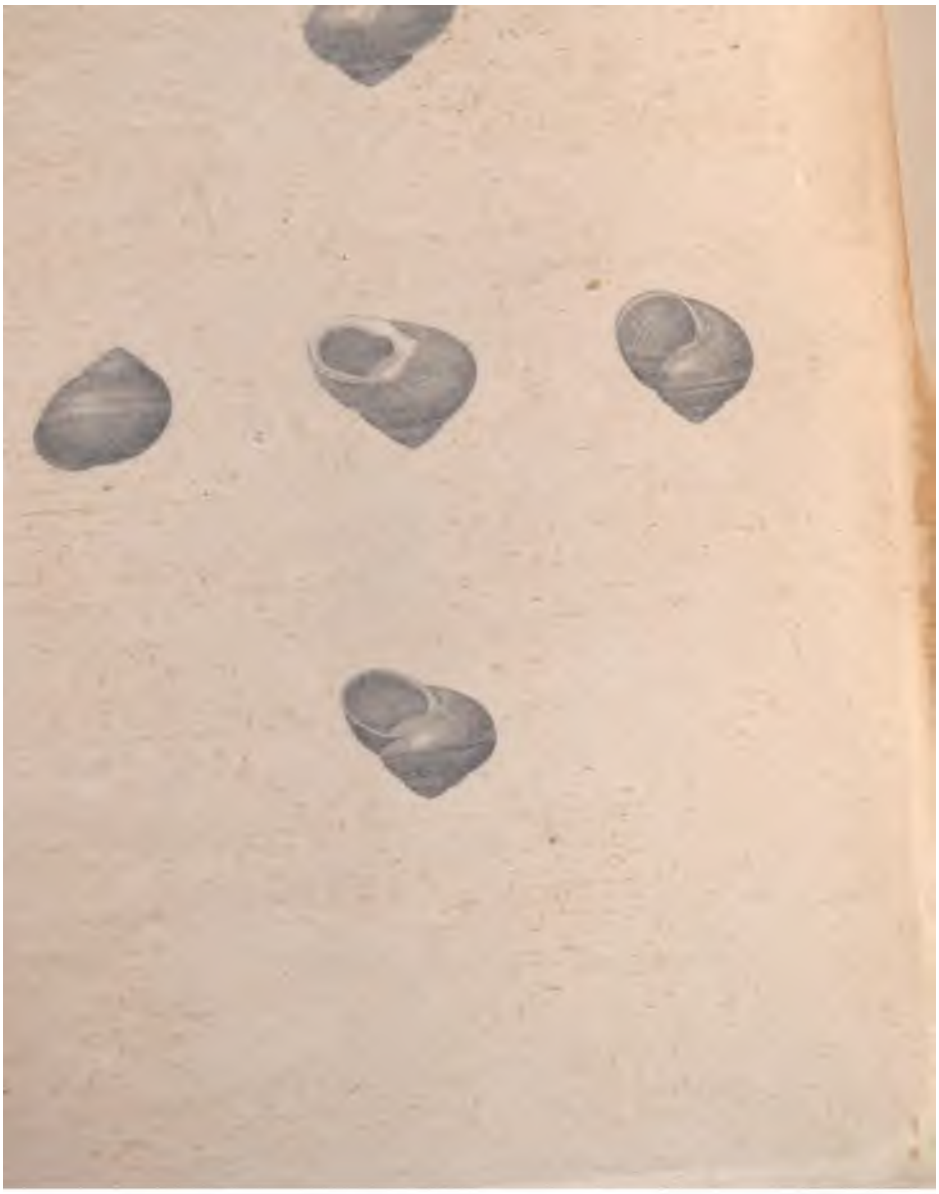




Helix columbiana, Lea.

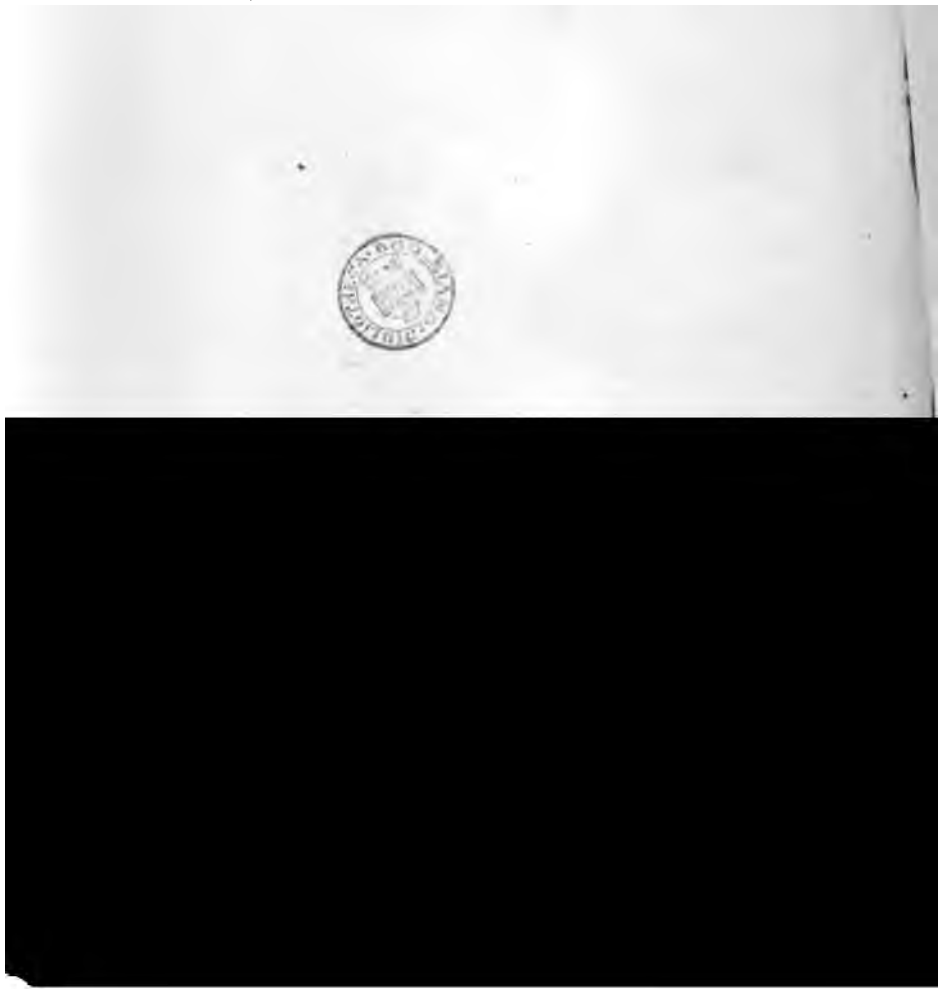


Helix Nickliniana Lea. *Helix Californensis* Lea.

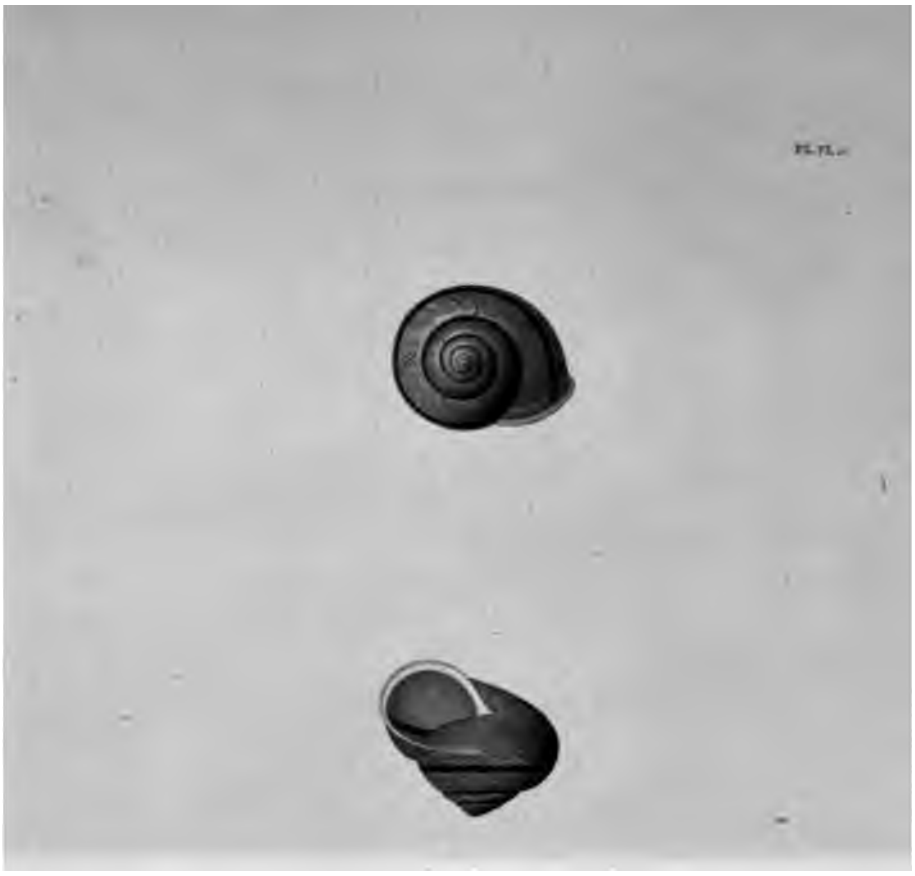


1. *Helix Nickliniana.* — Lea. 2 *Helix Californensis.* Lea.

[illegible] del. Alex Lawson sc.



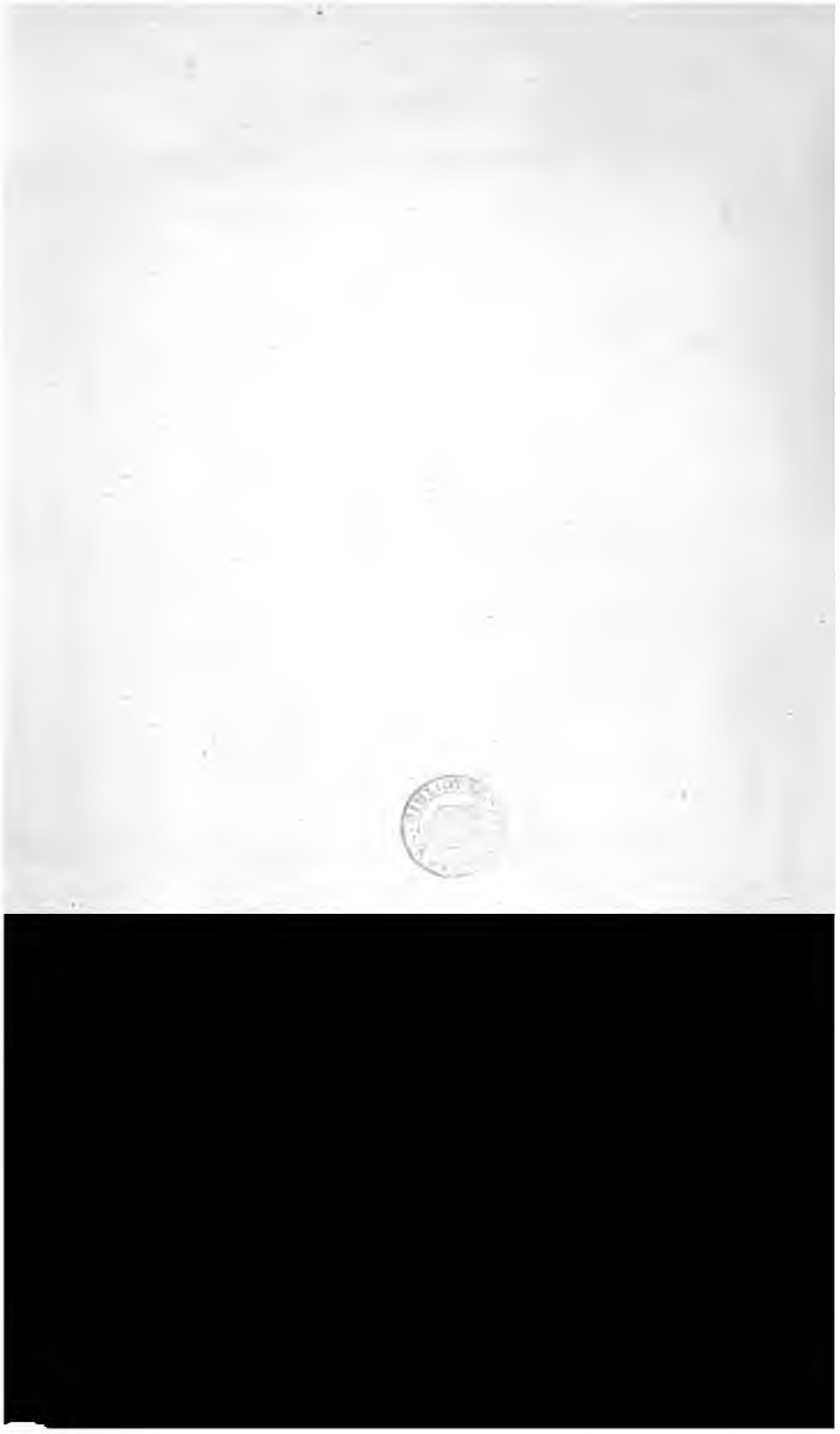
Helix nickliniana Lea



Helix nickliniana, Lea

Miss Helen E. Lowman del.

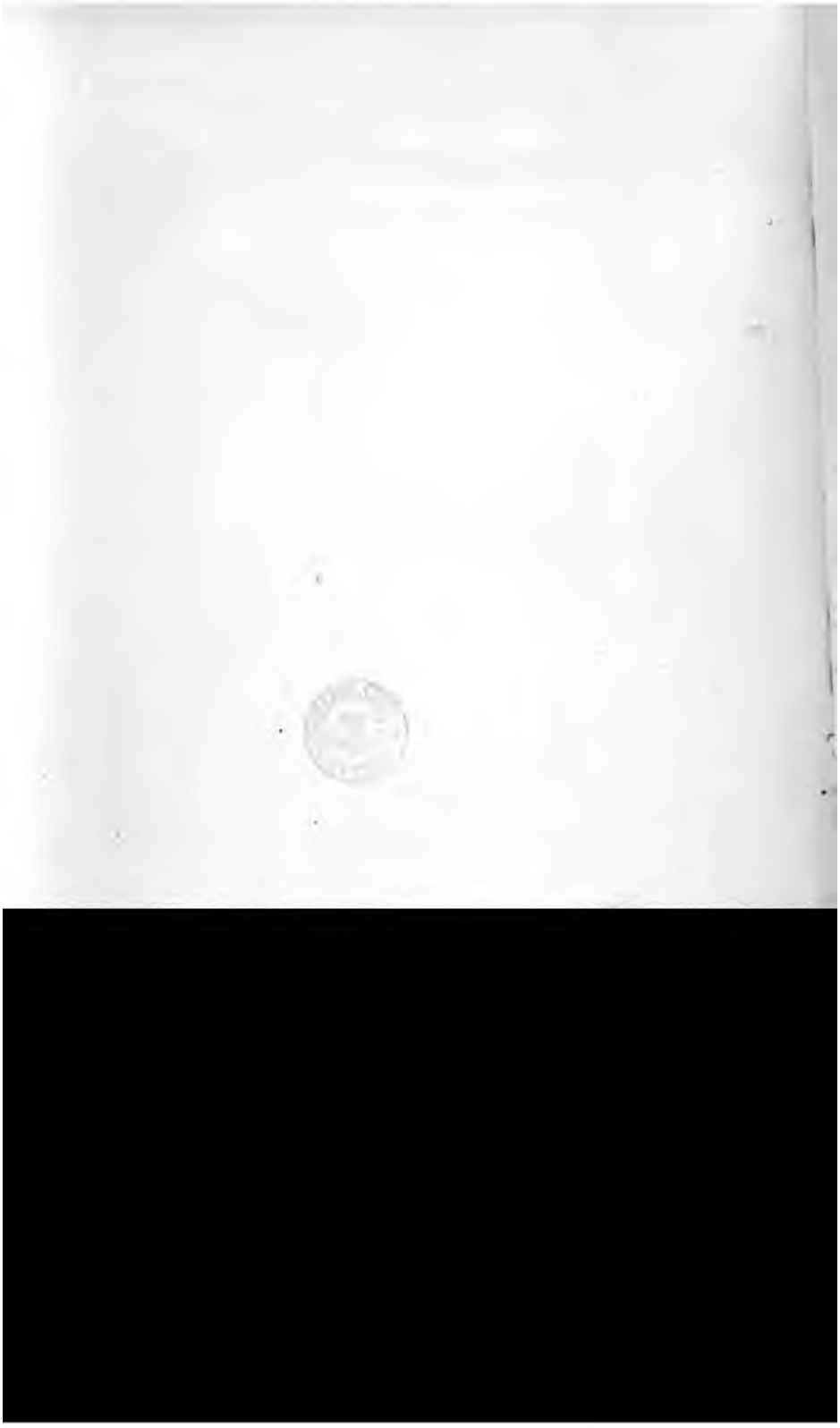
Mrs. Lowman Sc.



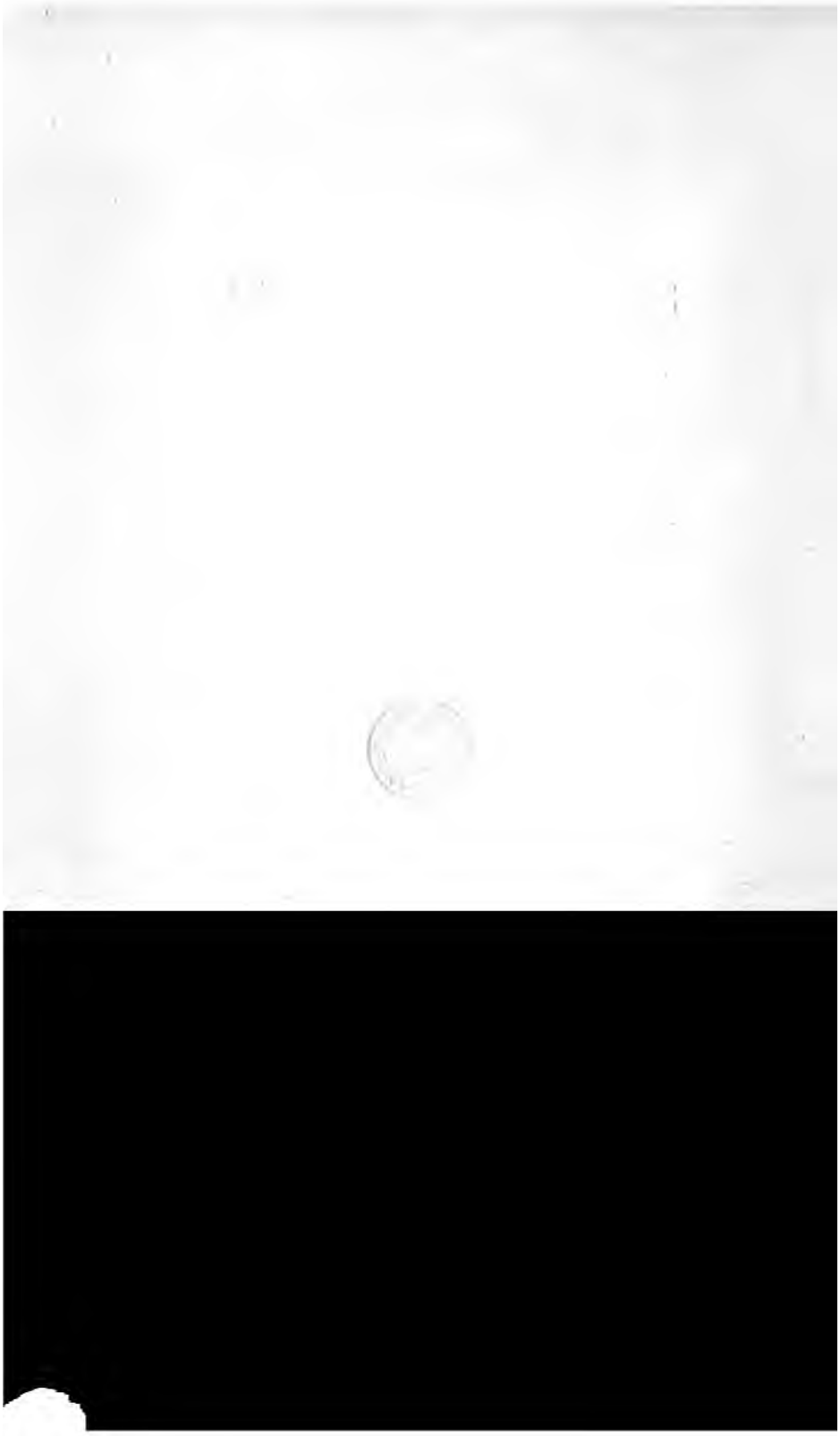
Helix Pennsylvanica

Helix Pennsylvanica, Say

Nicolino del. A. C. Warren sc.



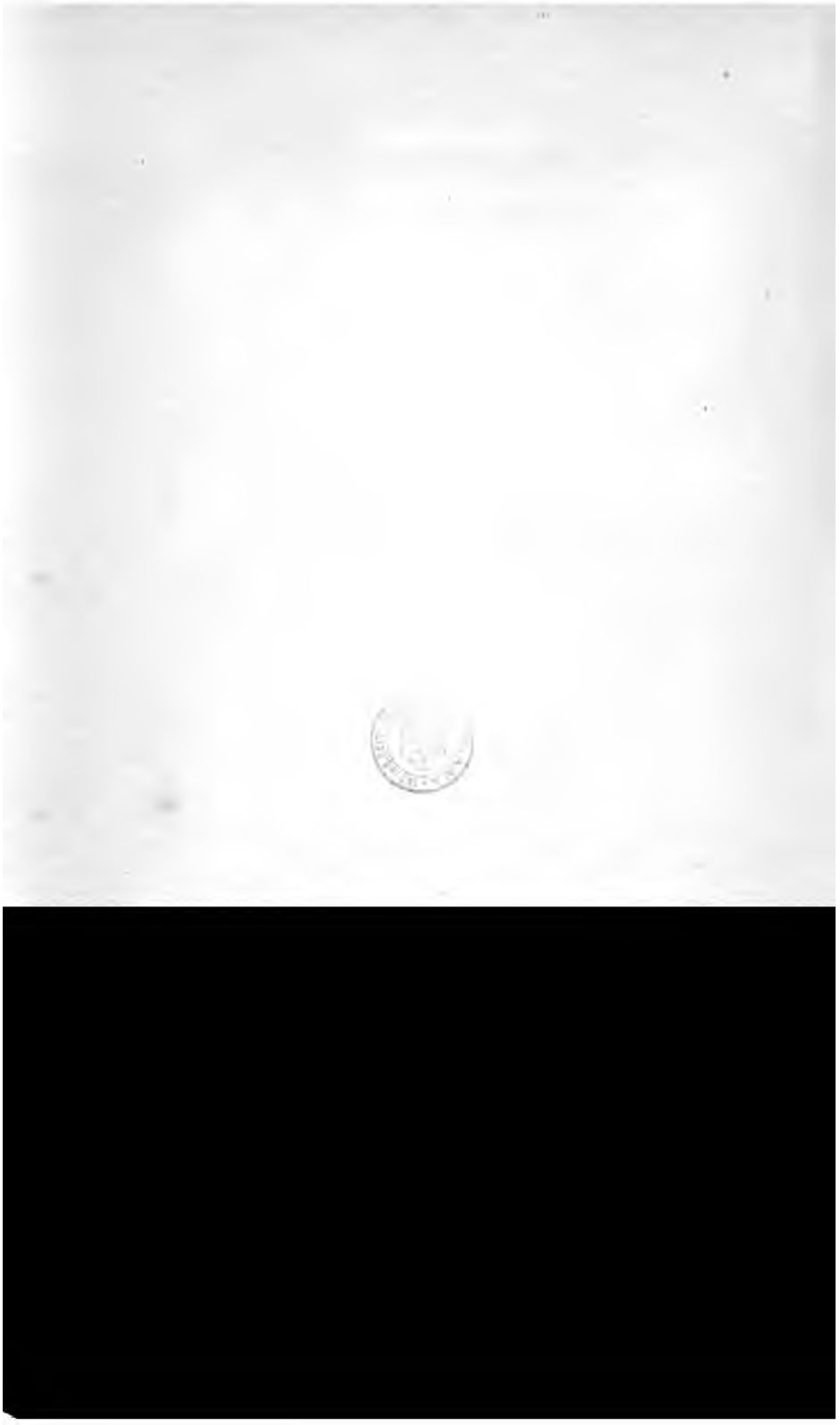
Helix hortensis. Müll

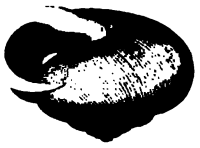


Helix elevata. — *Say.*

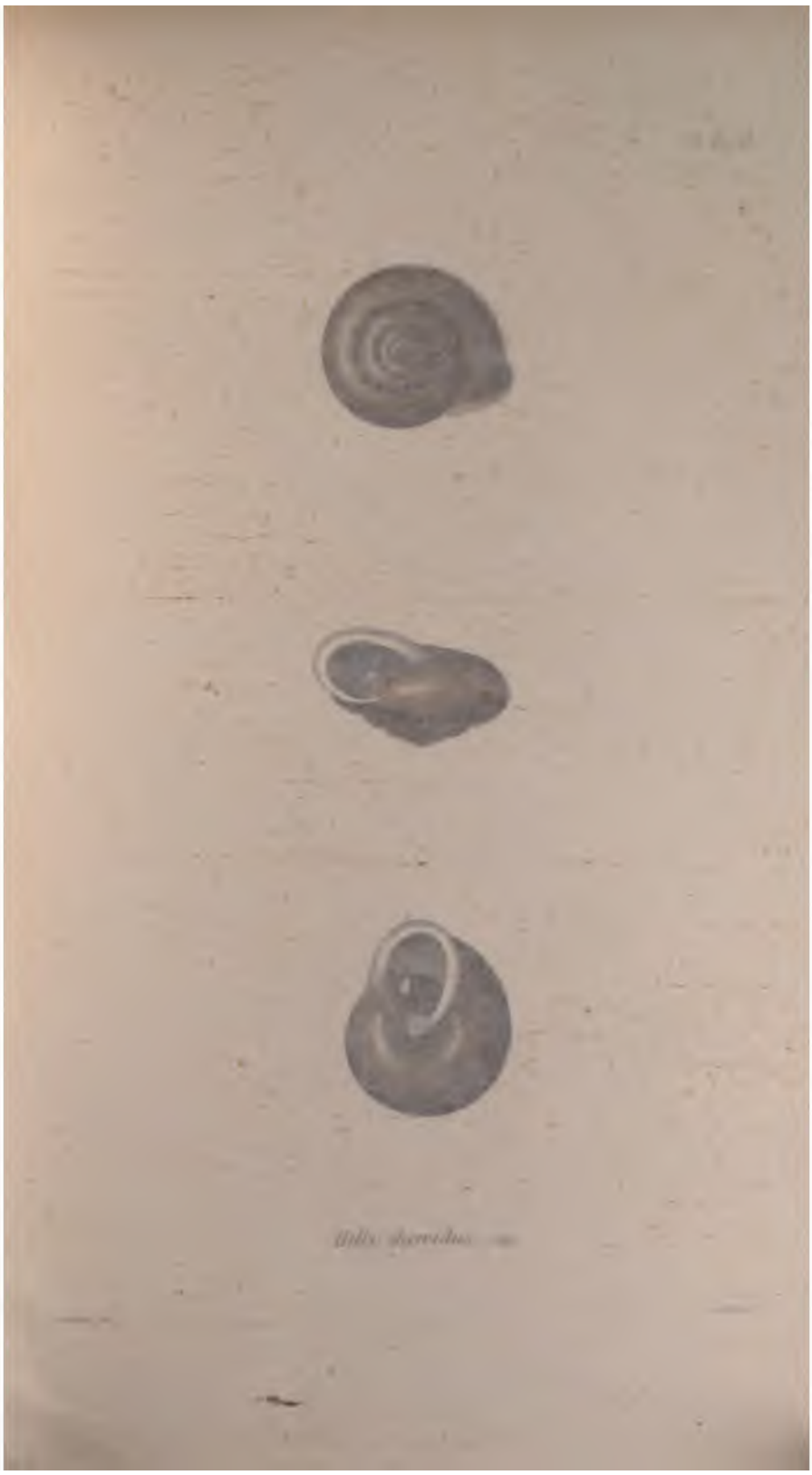
Nutting del.

Alex Lawson Sc.

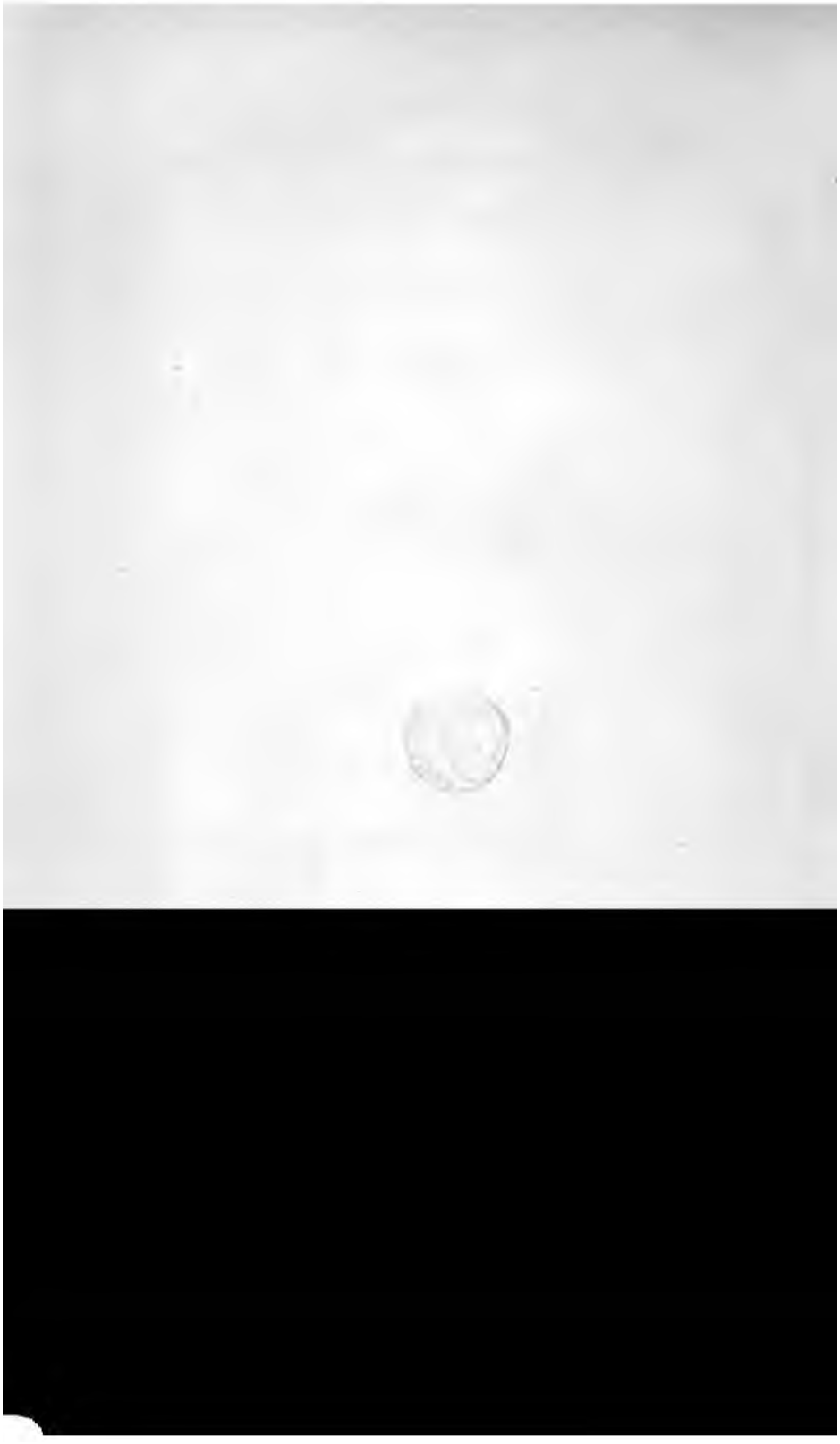




Helix excelsa



Helix thyreodus var.



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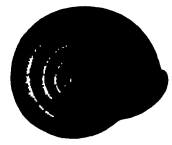

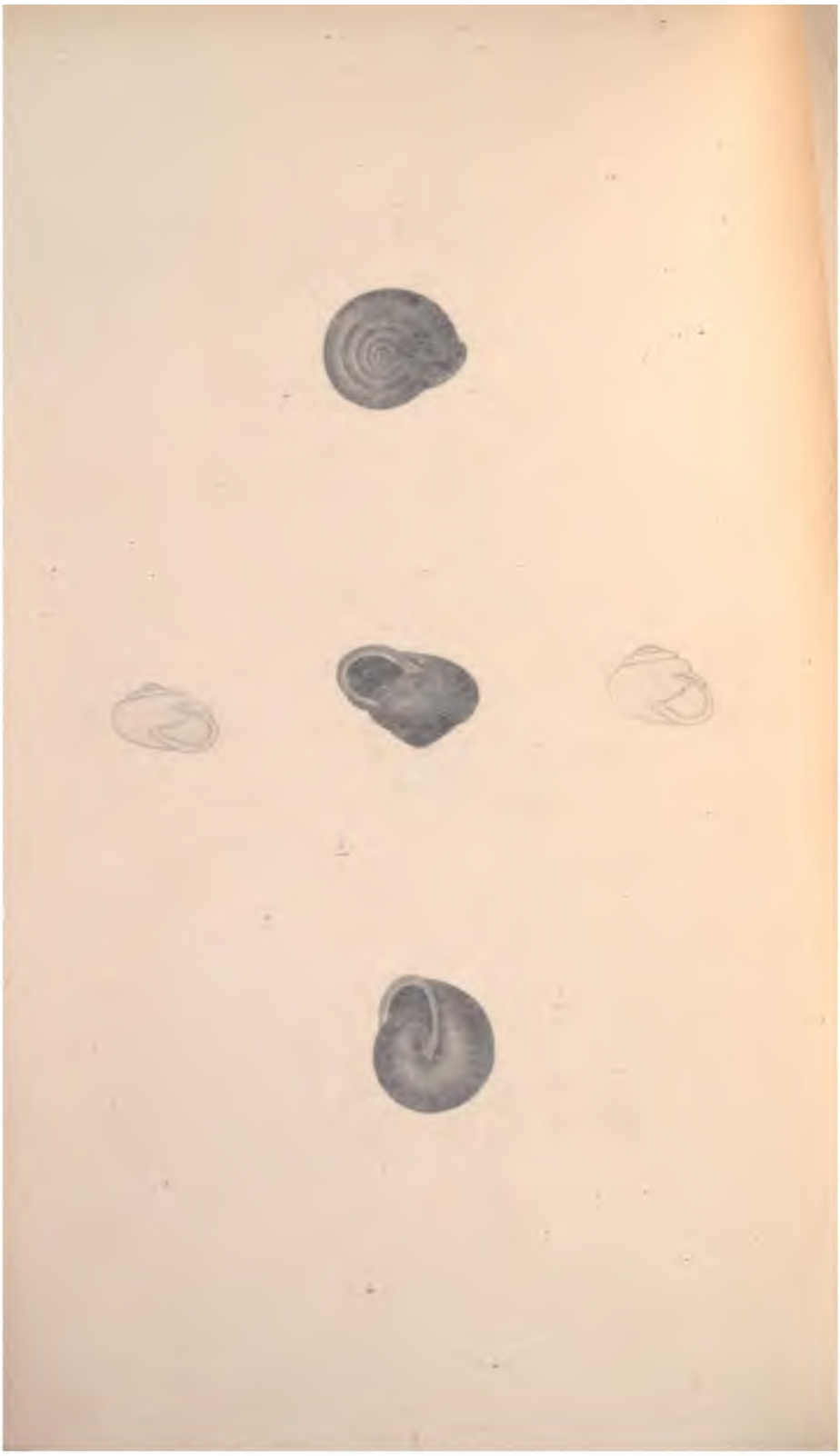

Helix bucculenta Gould

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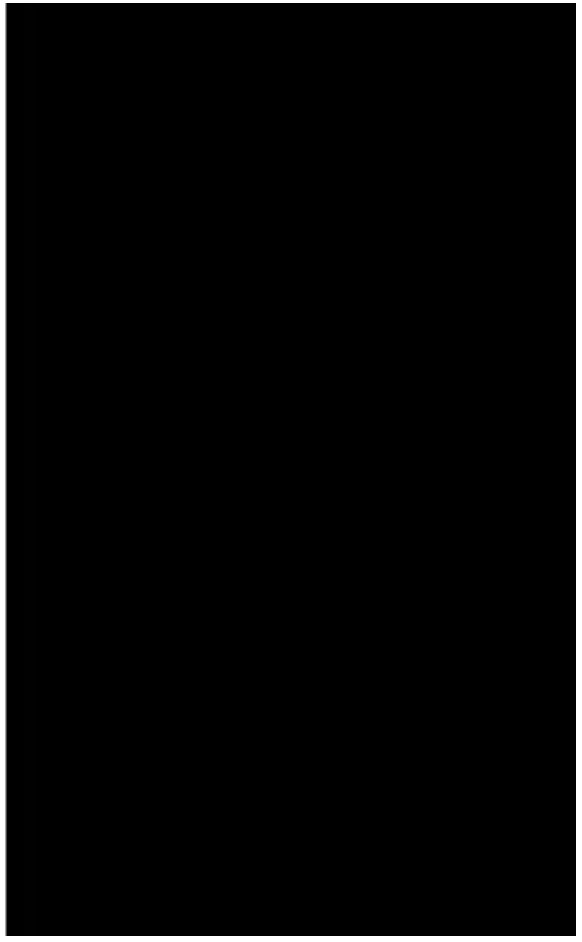
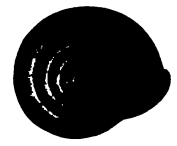
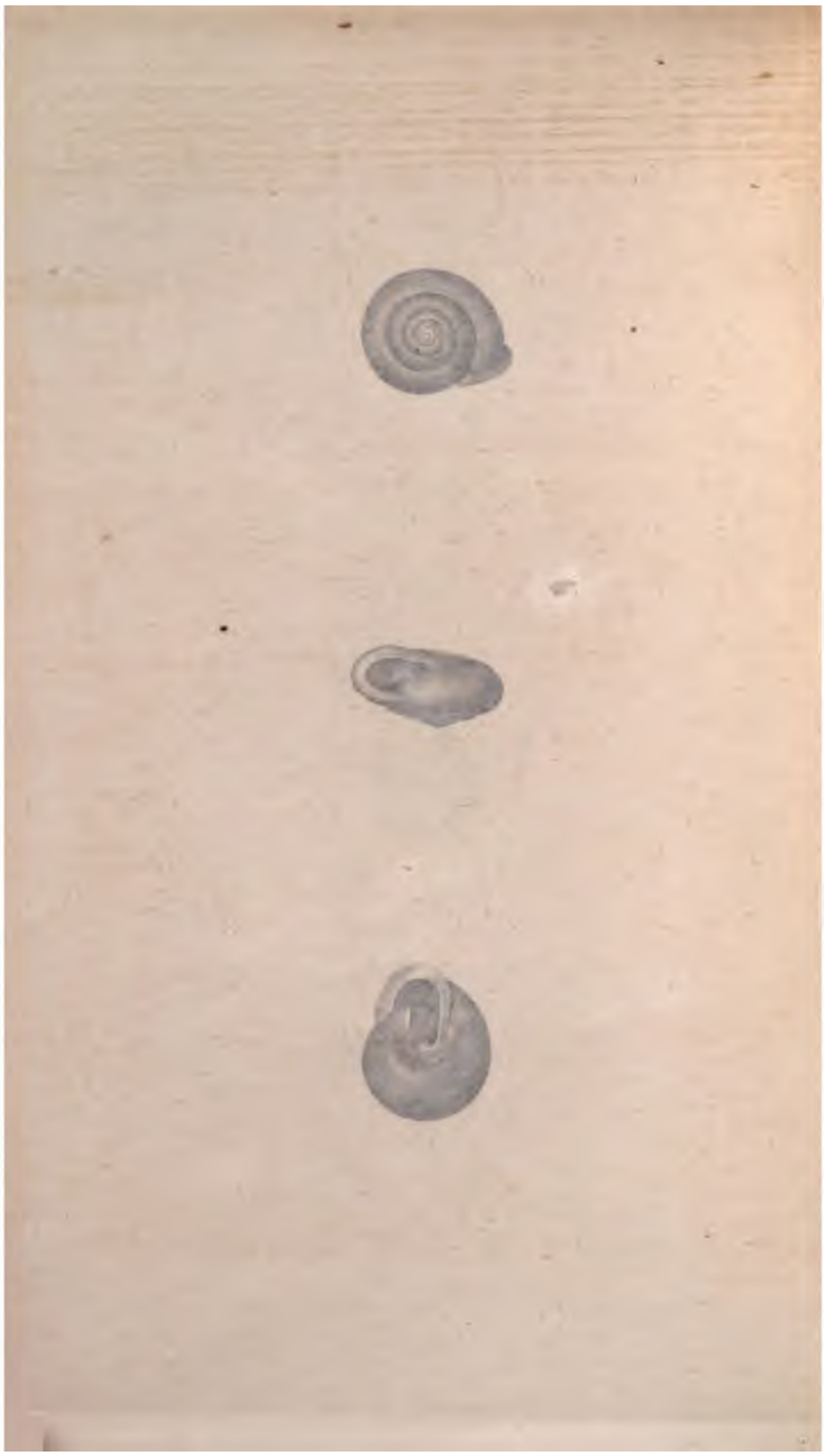


BIBLIOTECA BODLEIANA OXFORD

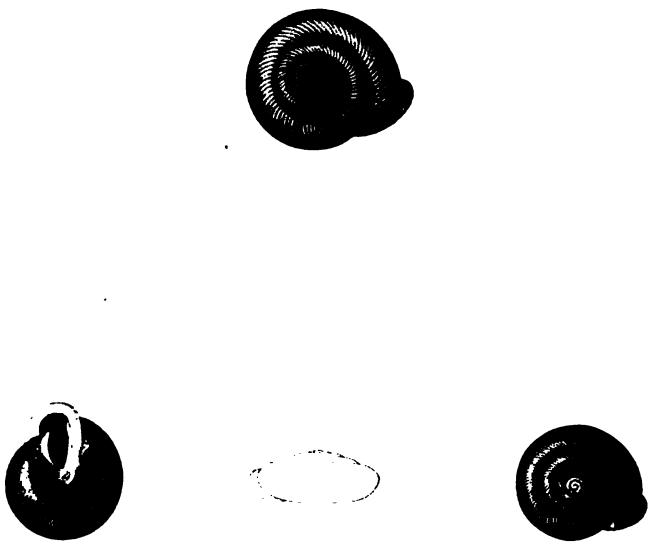


Helix bucculenta, Gould

BIBLIOTECA DEL CONGRESO

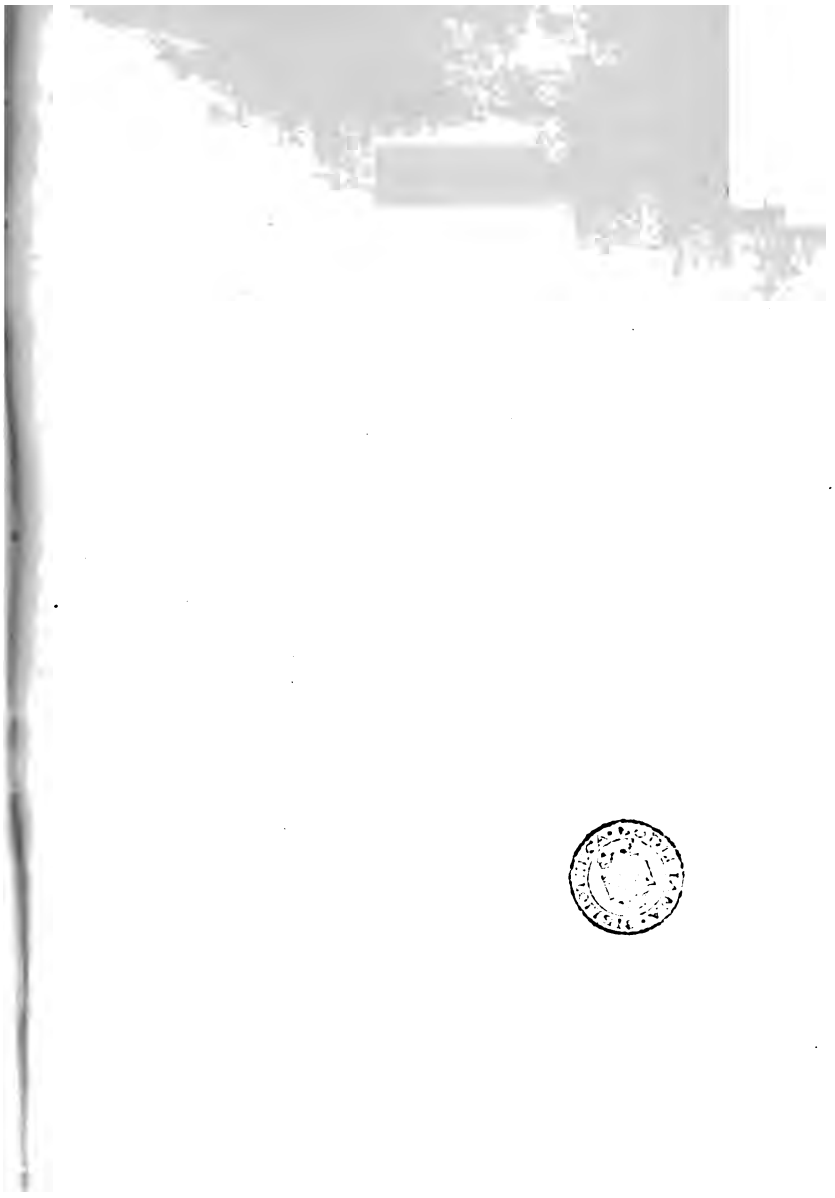


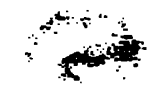
Helix dentifera.



Helix appressa, Say.

Helix appressa, Say.





Pl. XIII a
1. Helix labiosa Gould
2. Helix diversa Gould

1. *Helix labiosa*, Gould

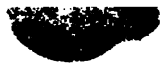
2. *Helix dimota*, Gould.

Imp. Delarue, del.t

Helix pallida

Helix palliata. Say

Nuttens del. Vea Lawson



Helix palliata, Say
(Carinated Variety)

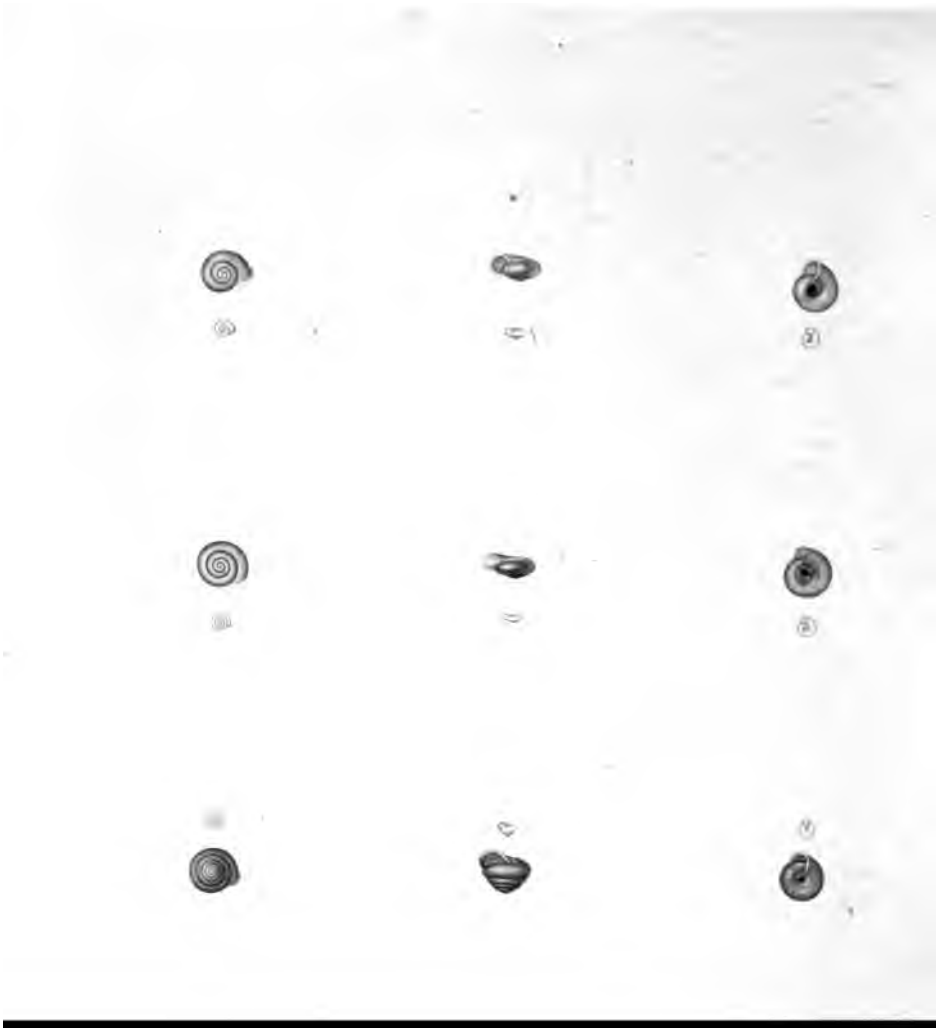
Miss Helen E Lawson del

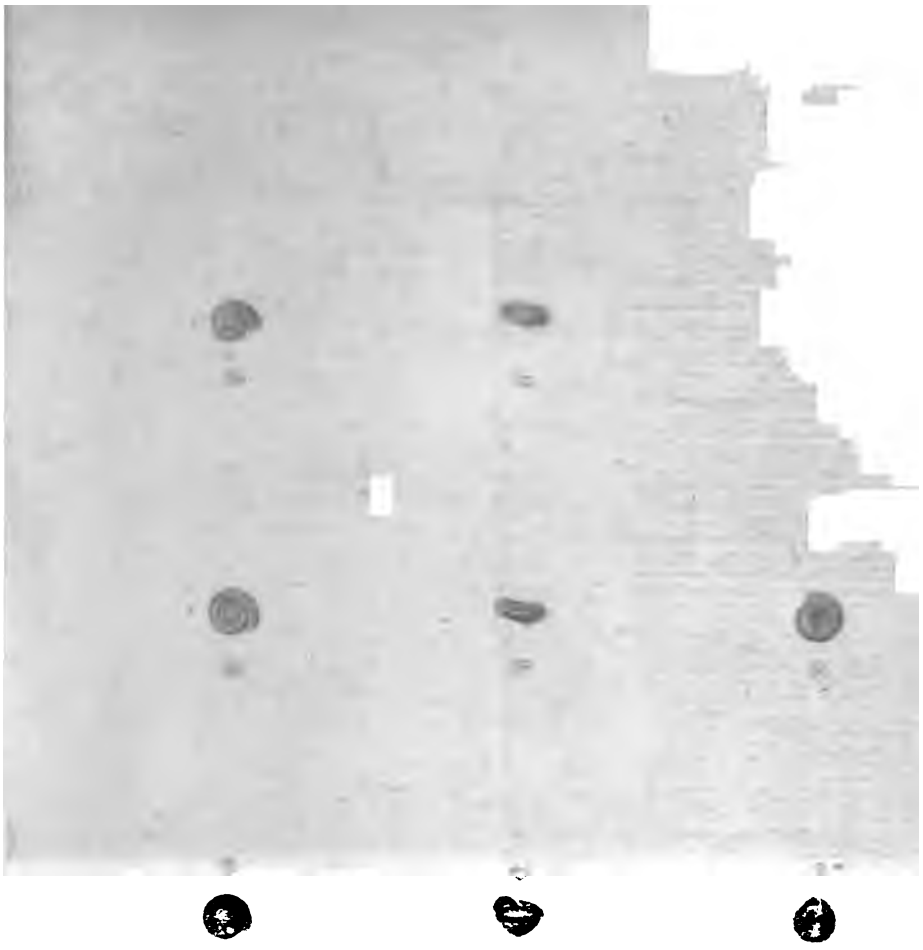
Fig. 2

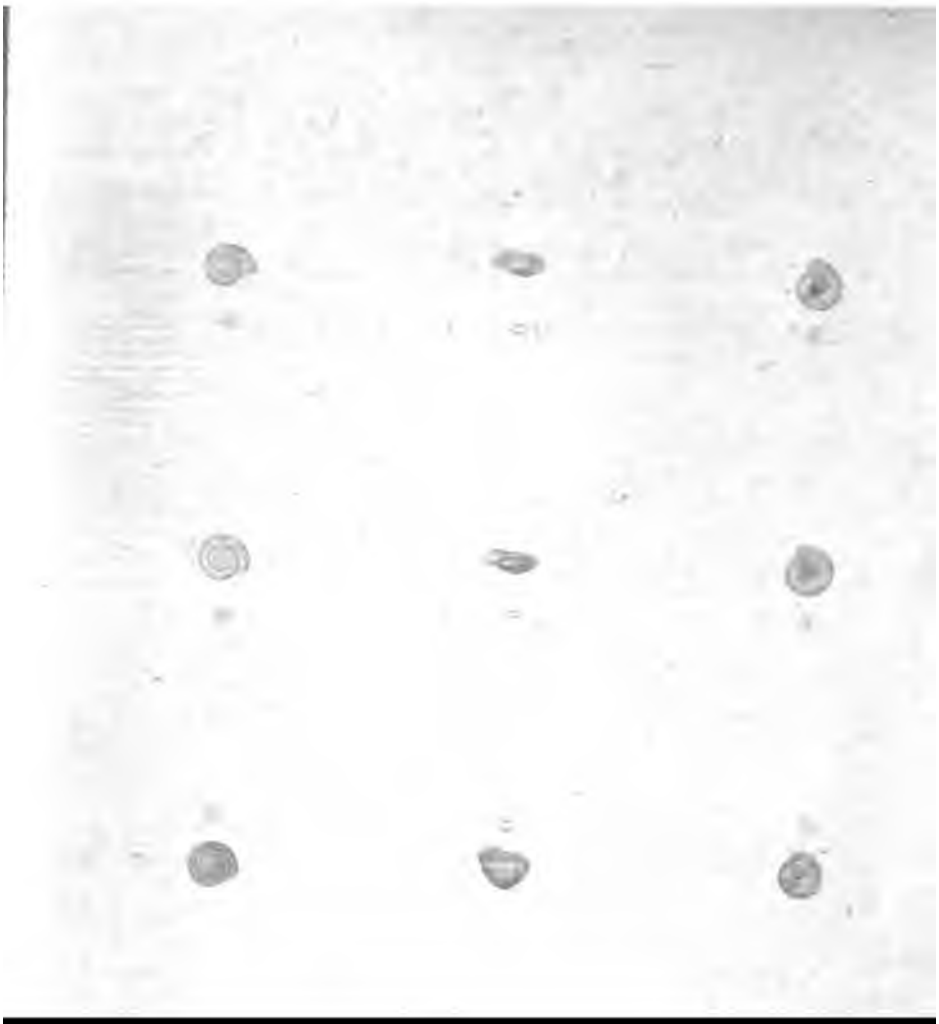
BIBLIOTHÈQUE

Helix imbricata

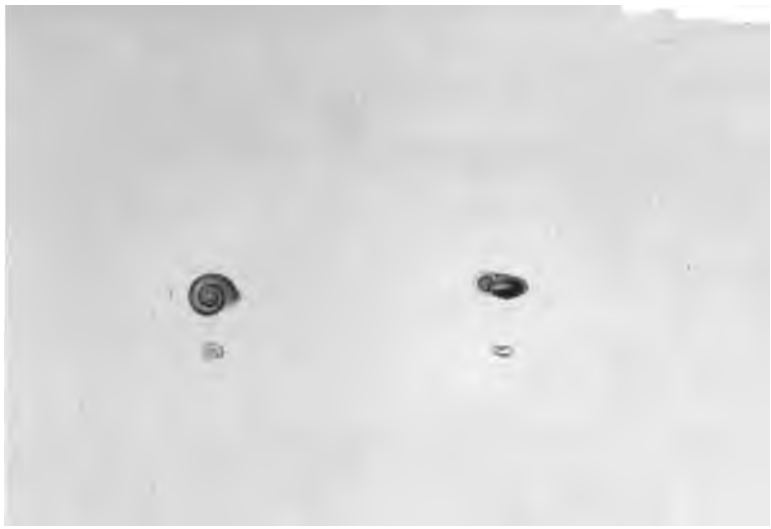
Helix tudiculata

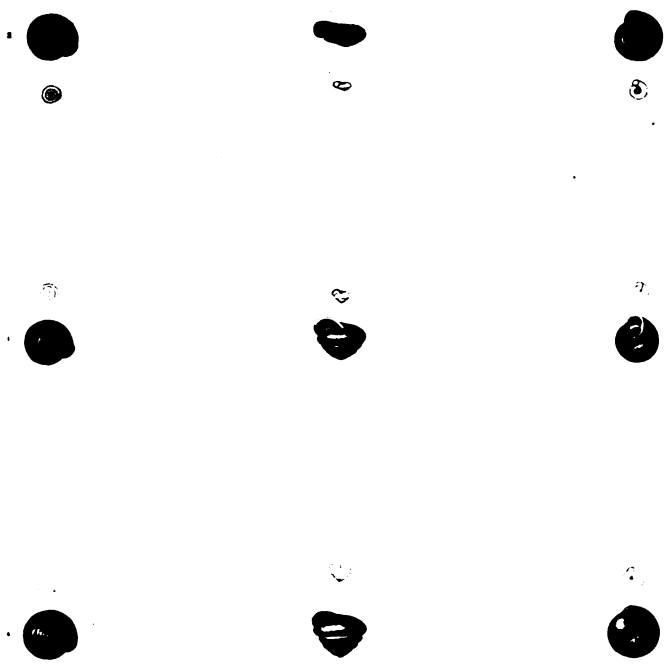






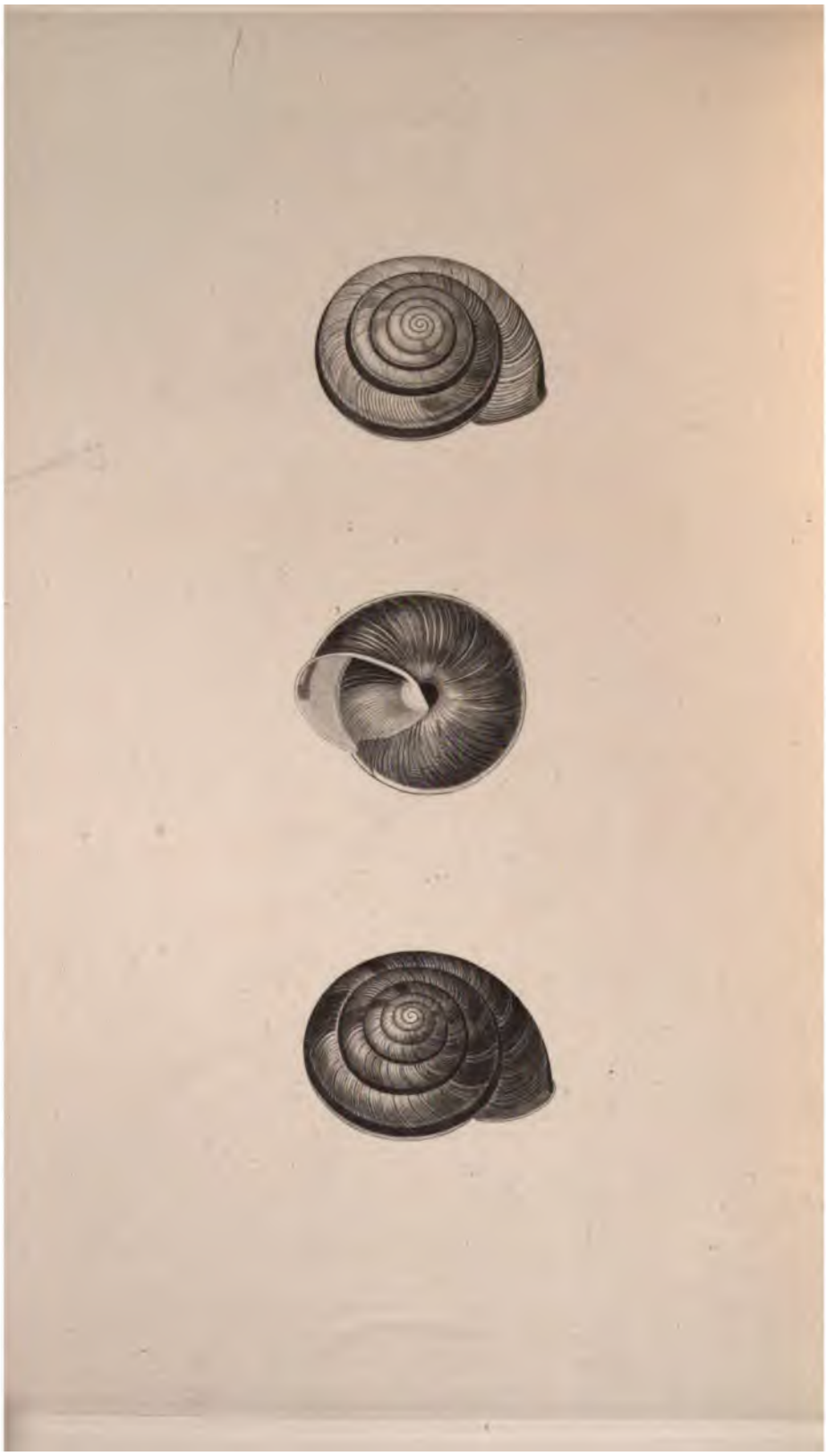
PL. XVII.





1. *Helix pulchella.* Müll.
2. *minuscula.*
3. *Helix labyrinthica.* Say.
4. *chersina.* Say.

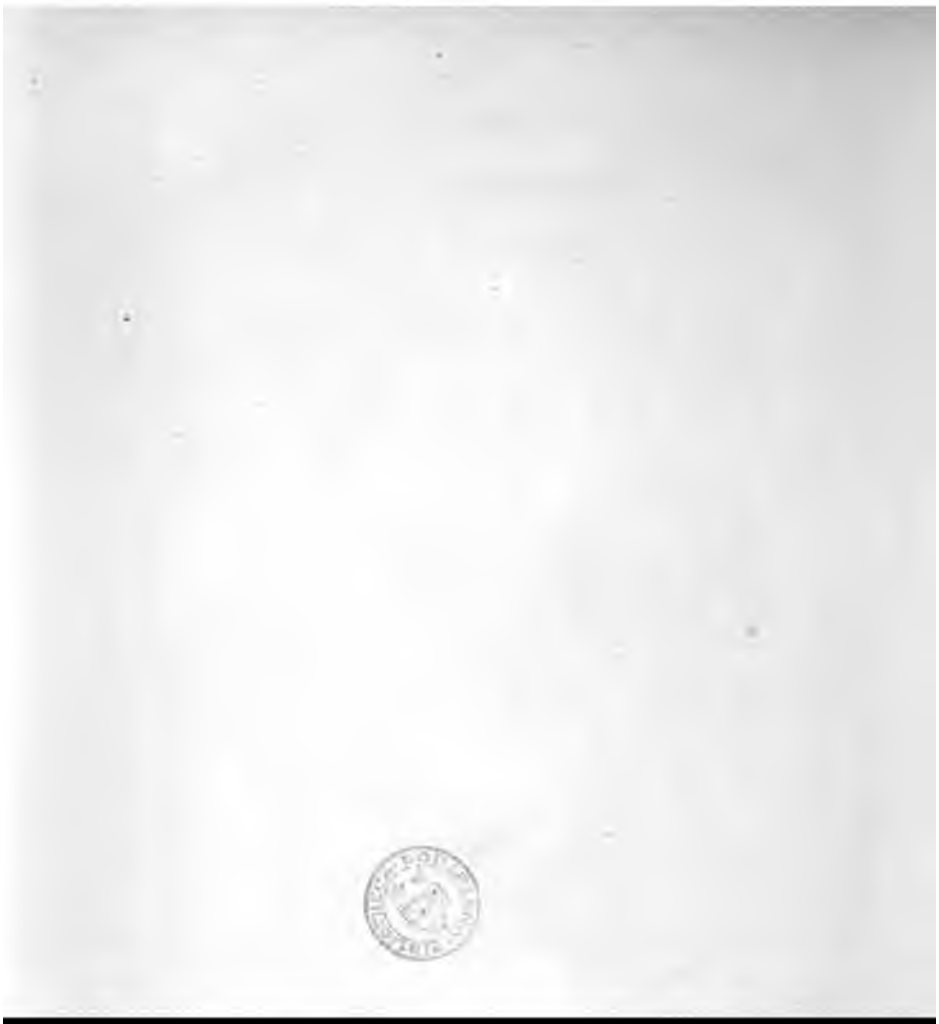
Nutting del. J. Warren Sc.



Helix Nattalliana, Lea.

Helix Nuttalliana, Lea

Hutting del. Rev. Lawson Sc.



Helix Townsendiana

Pl. XIX.

Helix Townsendiana. Lea.

Nutting del.

Alex. Lawson Sc.

Helix Townsendiana, Lea

Hallowell del

Alex. Lawson Sc.

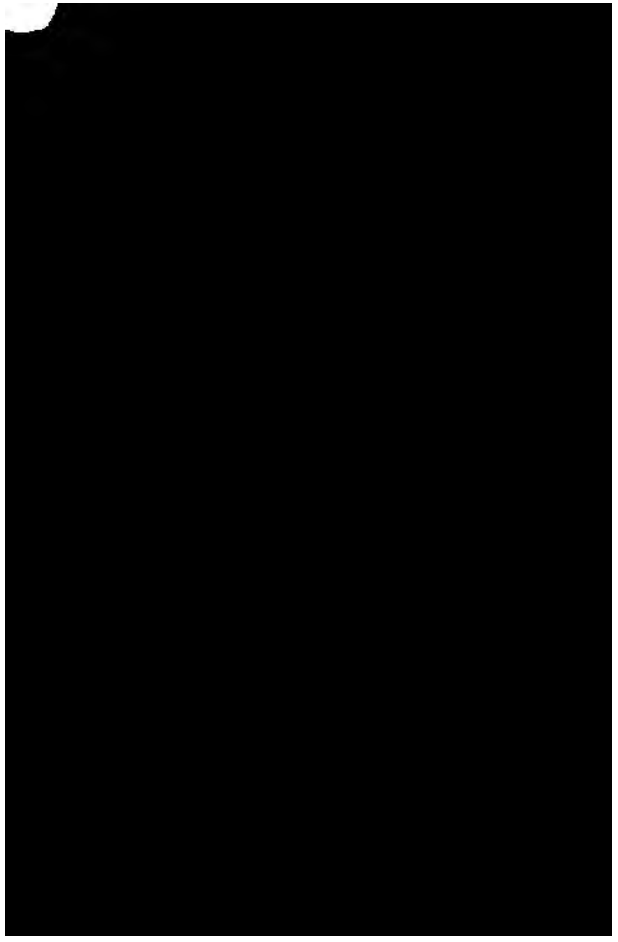
Helix Townsendiana. Lea

Sowerby del. Alex. Lawson sc.

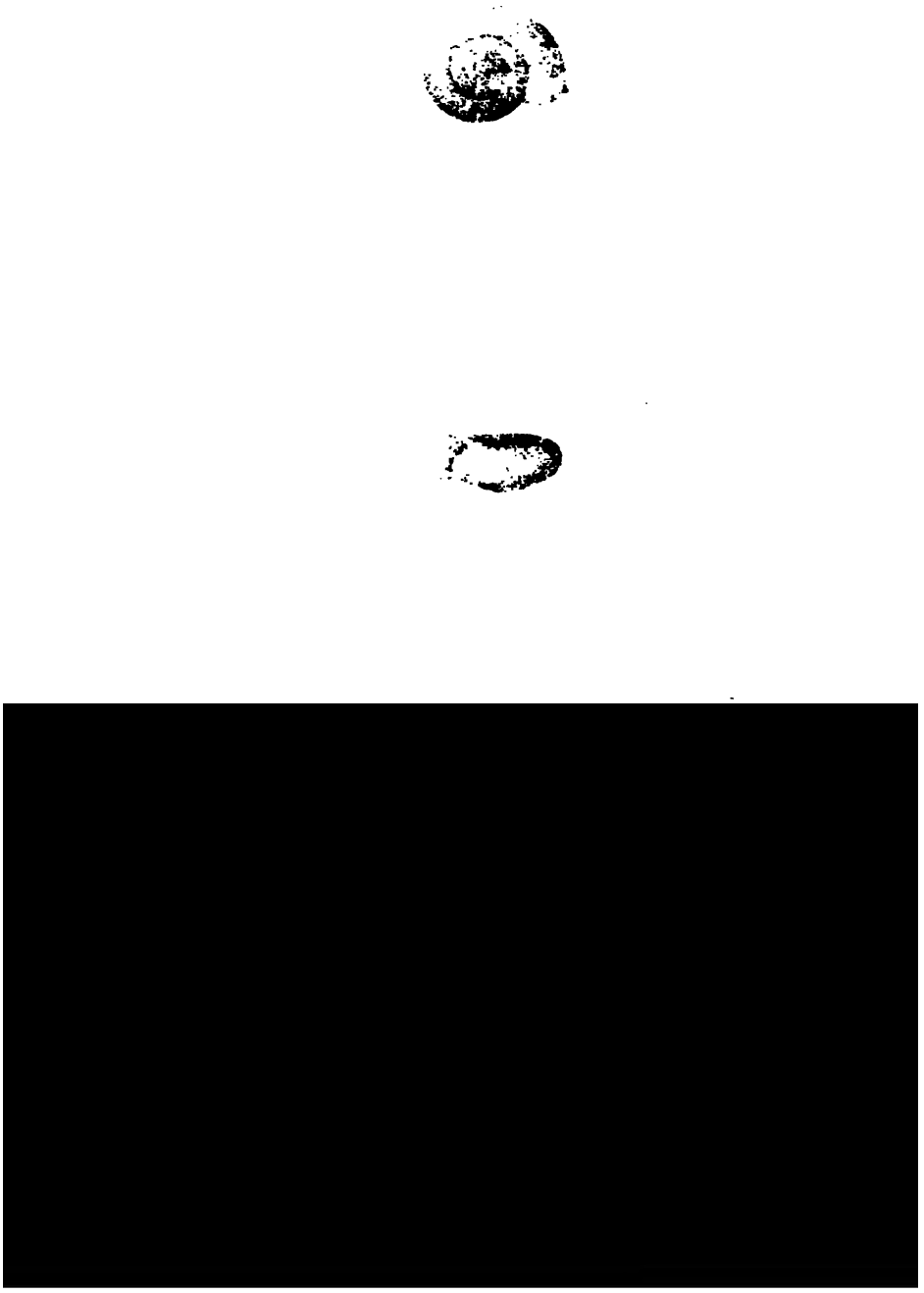
Helix [illegible]

Helix Vancouverensis. Lea.

Nutting del. W. F. Tucker Sc.



Helix [illegible]

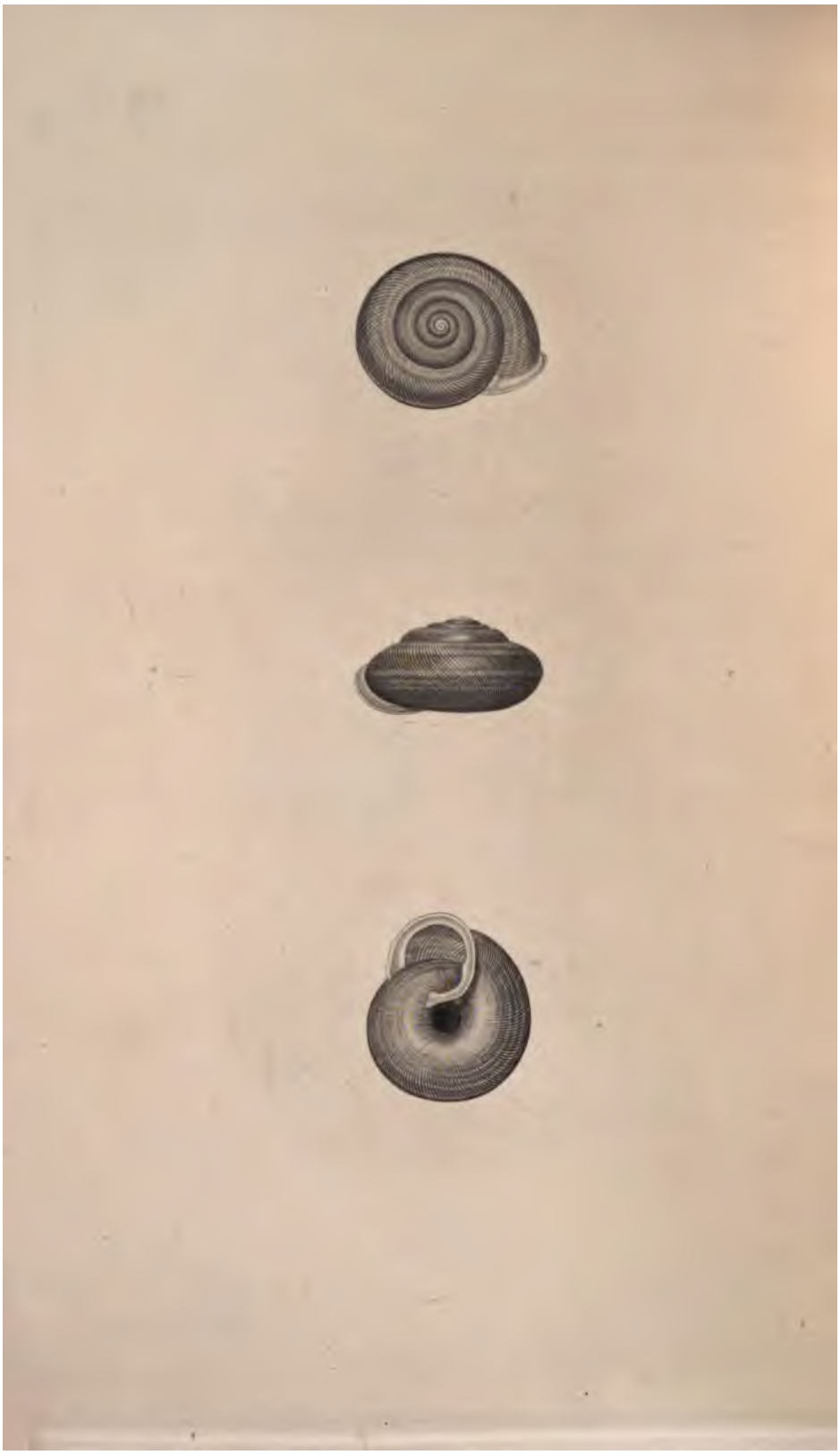


Pl. XXI

Helix concava. Say.

Sutton del.

W. H. Tucker sc.

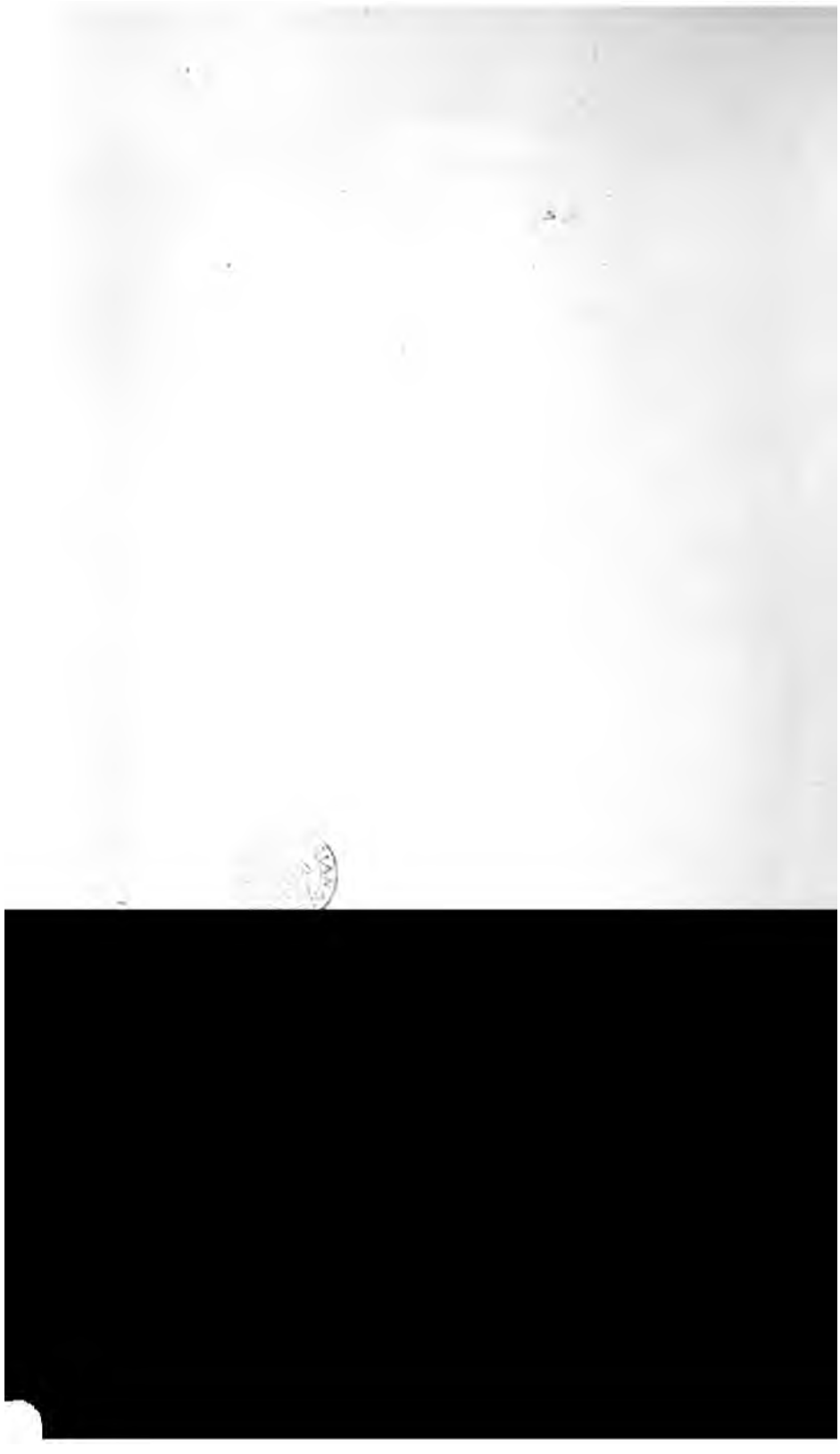


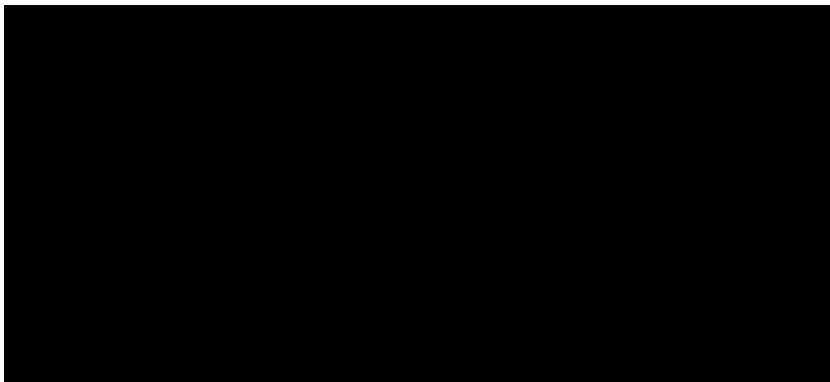
Helix profunda.... *Say*

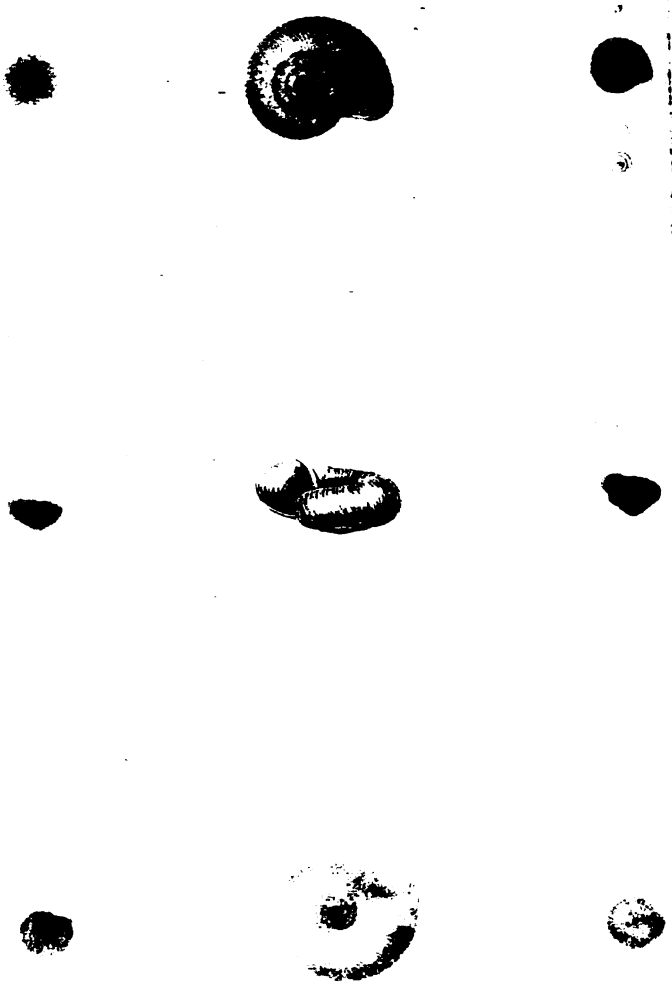
Helix profunda.__Say.

Nutting del

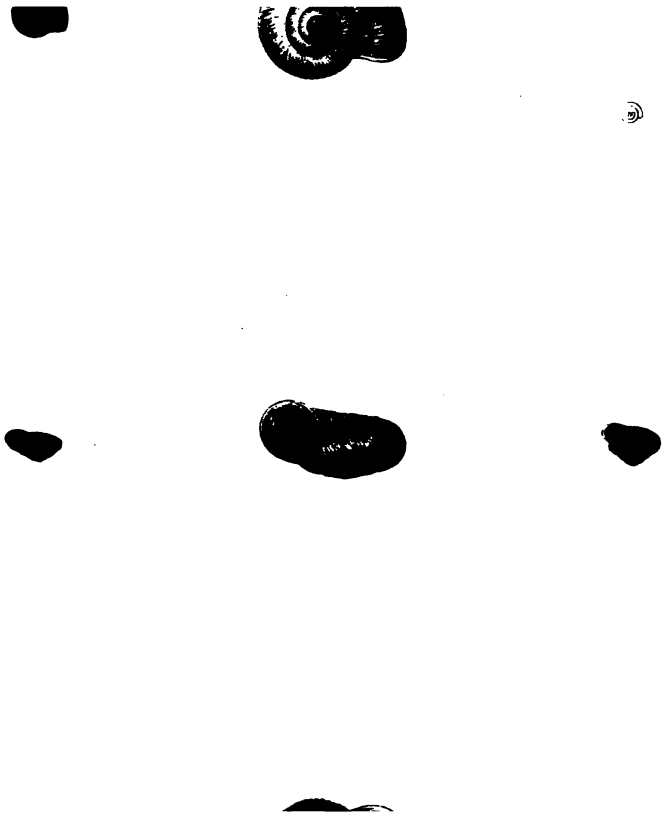
Alex Lawson Sc

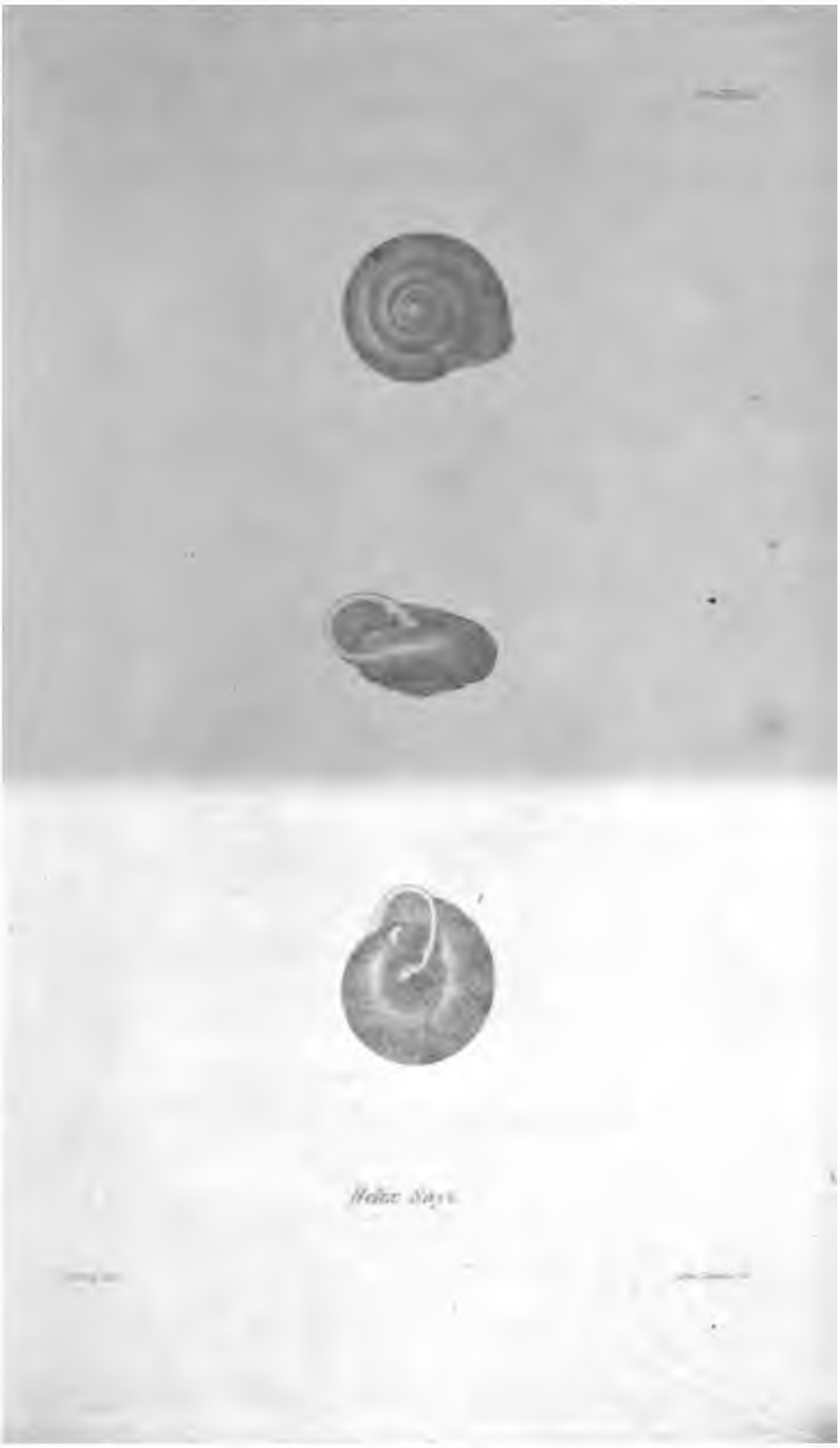




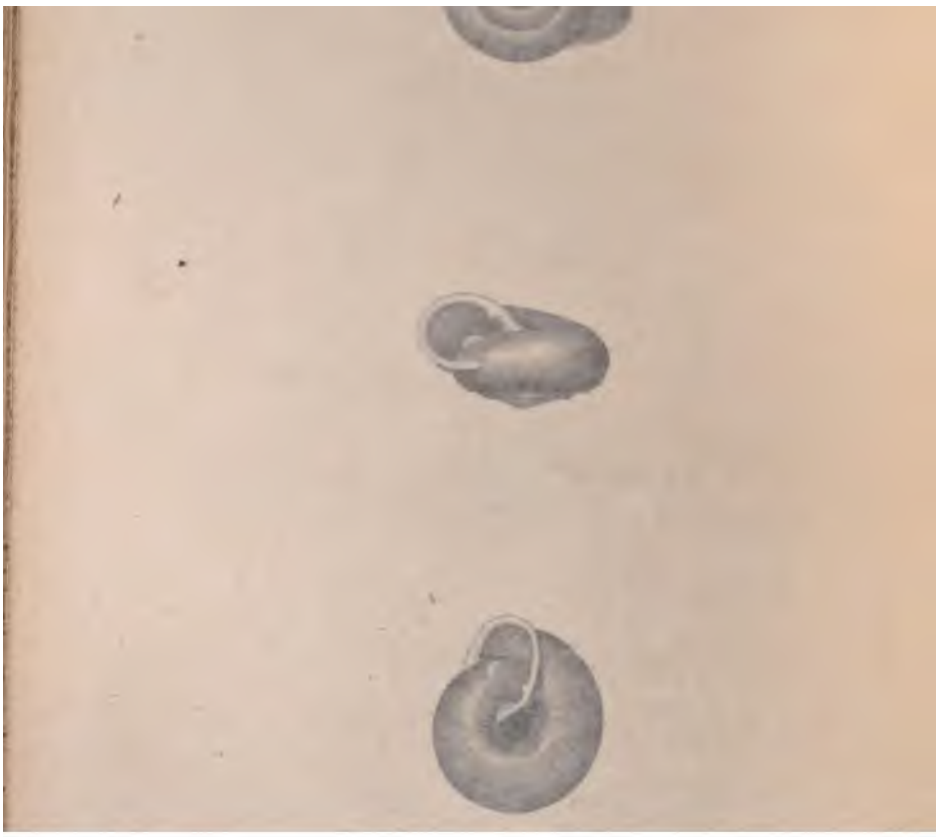


[redacted]





Helix Say.



Helix Savi.

Nuttall del. Alex Lawson Sc.

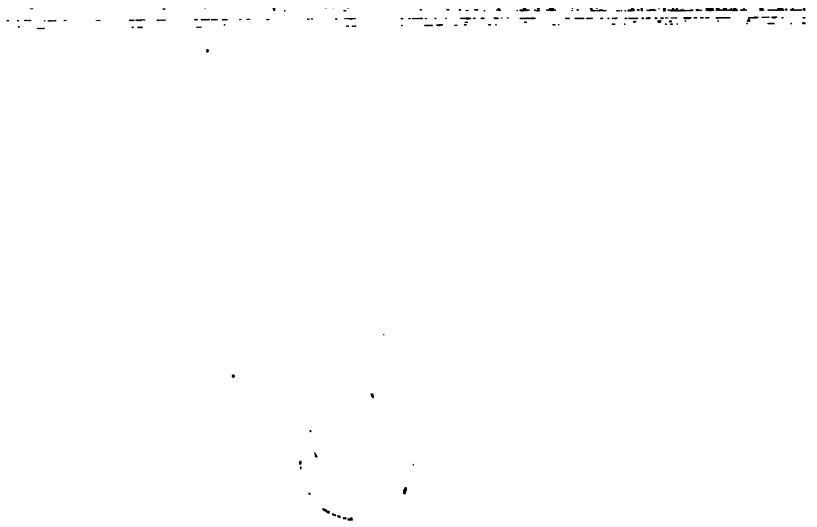
Helix solitaria. Say

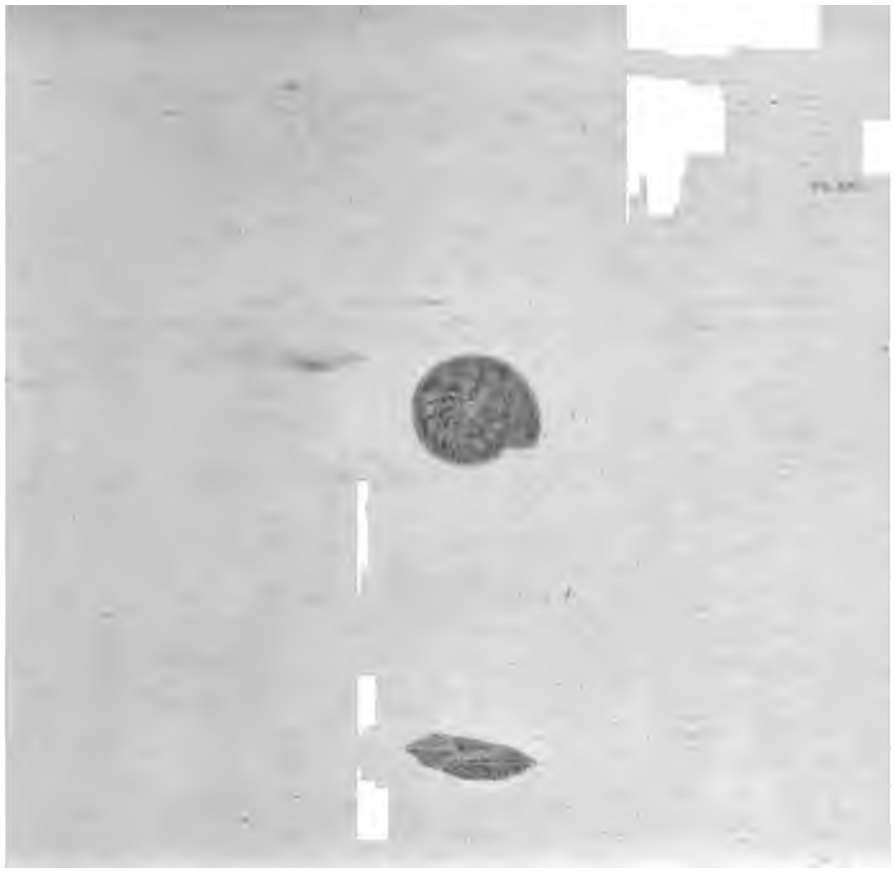
Helix solitaria. Say.

PL. XXV.

Helix alternata,— Say.

Fleming del. Duval & Crosscup? Sc.



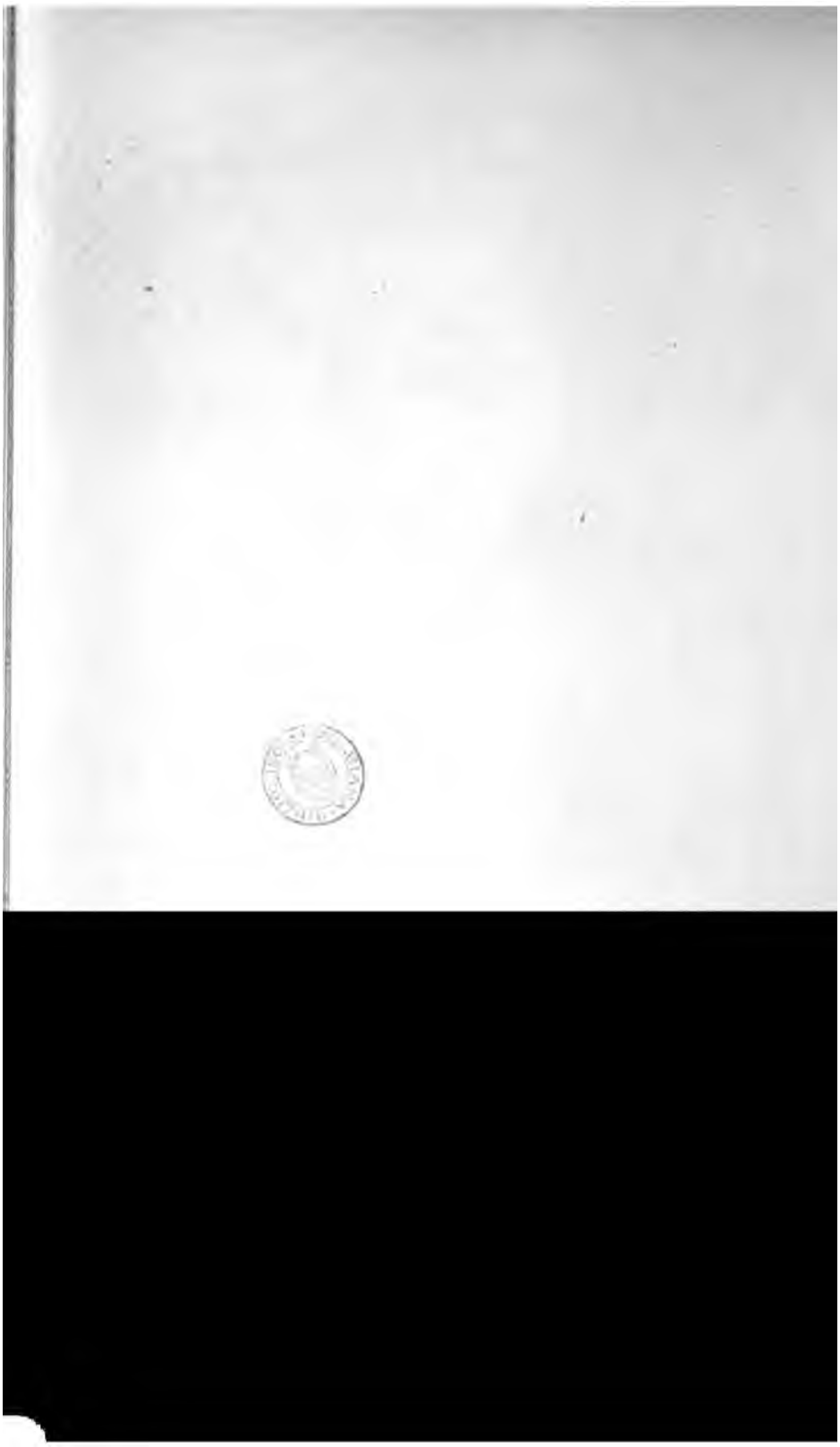


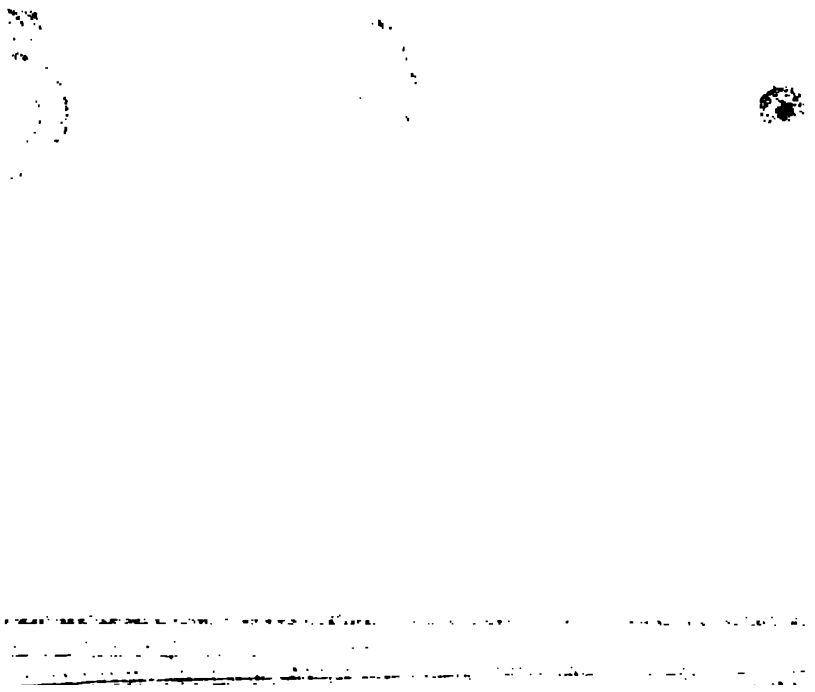
[redacted]

PL. XVI.

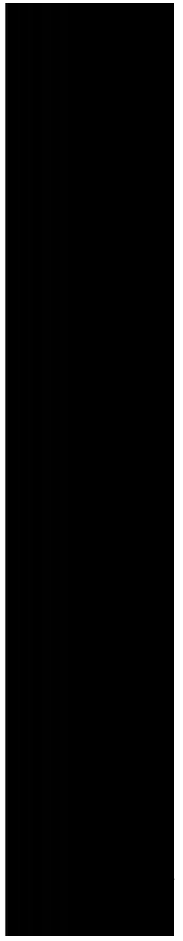
Helix Cumberlandiana. _ Lea.

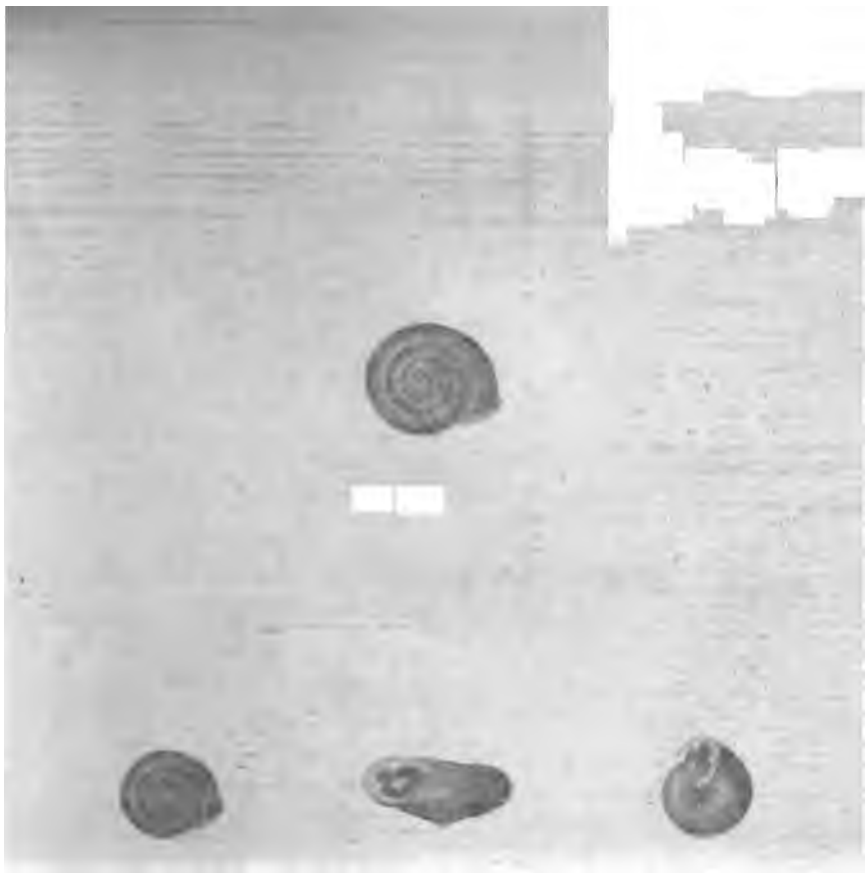
[illegible] del — R W [illegible]





Helix strigosa Gould





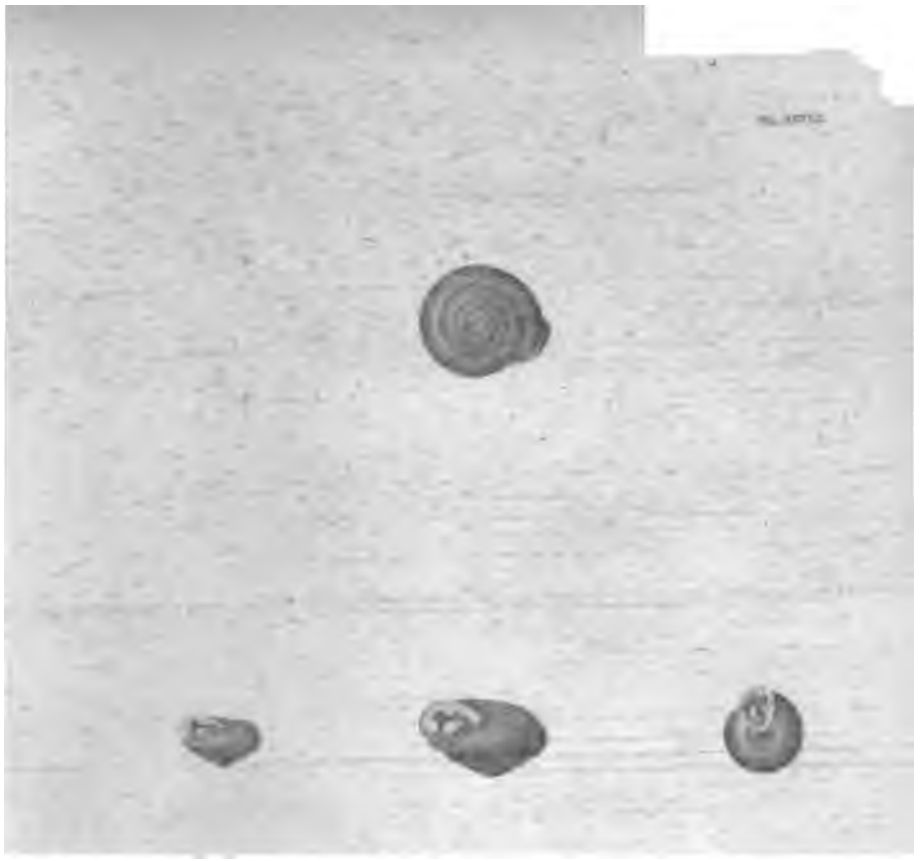
Helix [illegible]

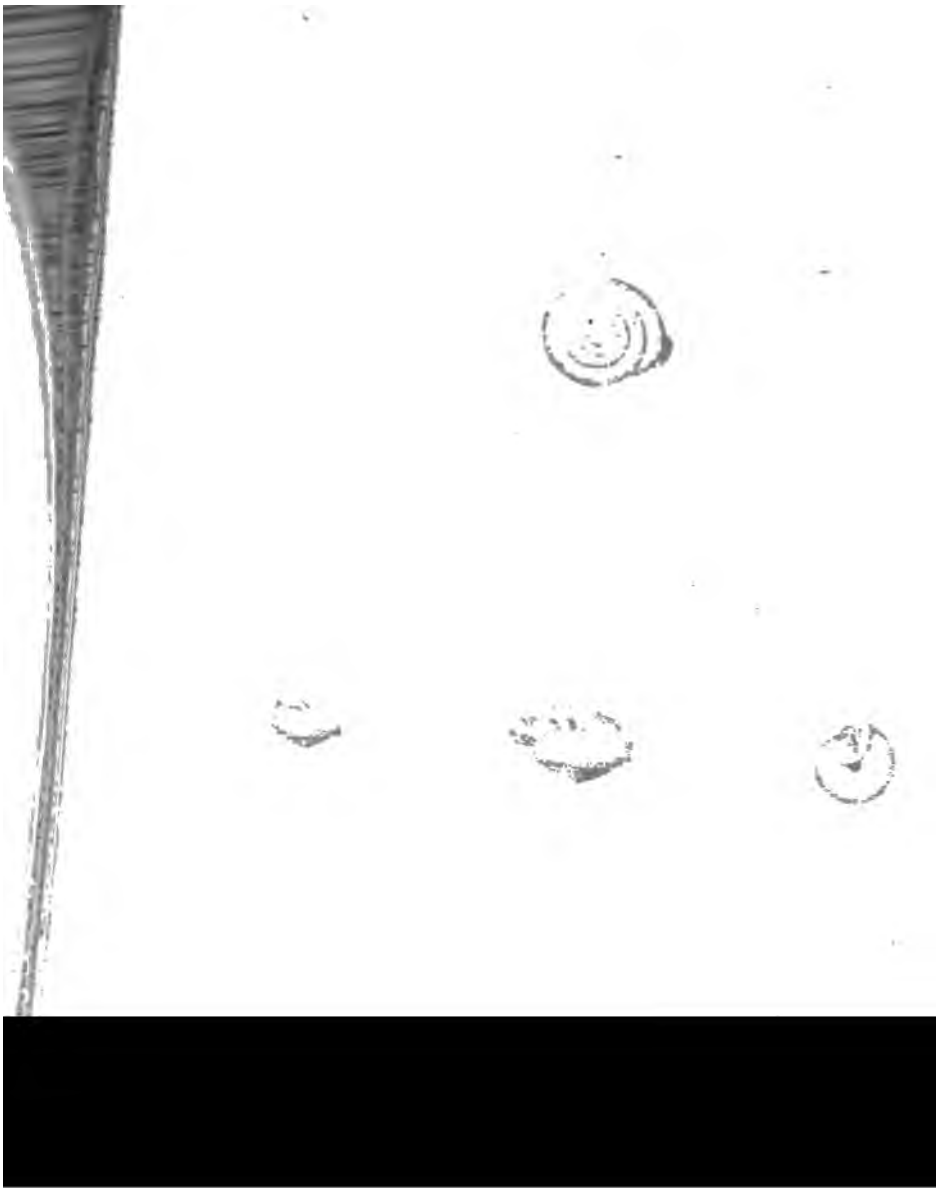
PL. XXVII.

Helix tridentata, say

Hutting del.

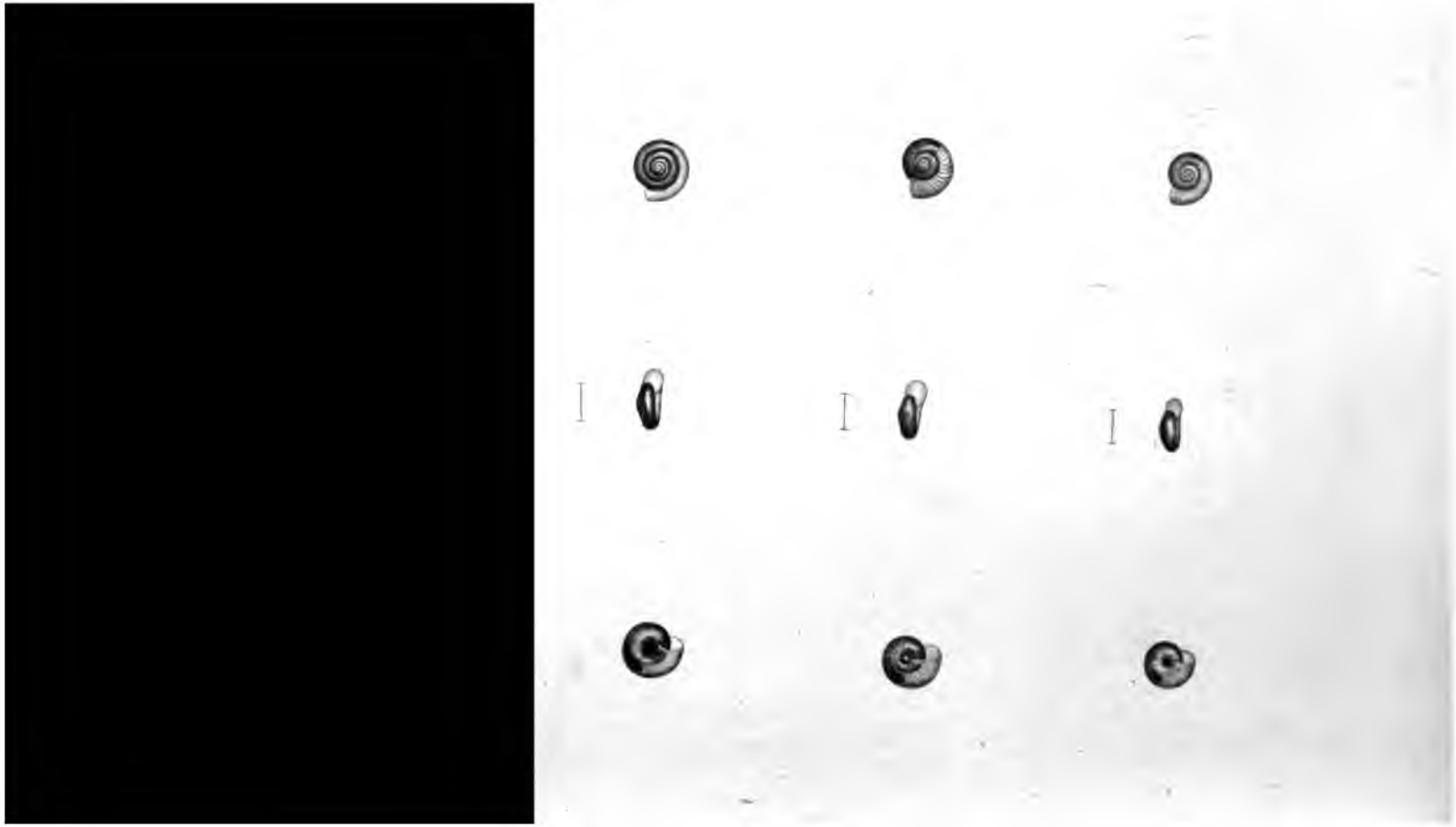
A. C. Warren Sc.

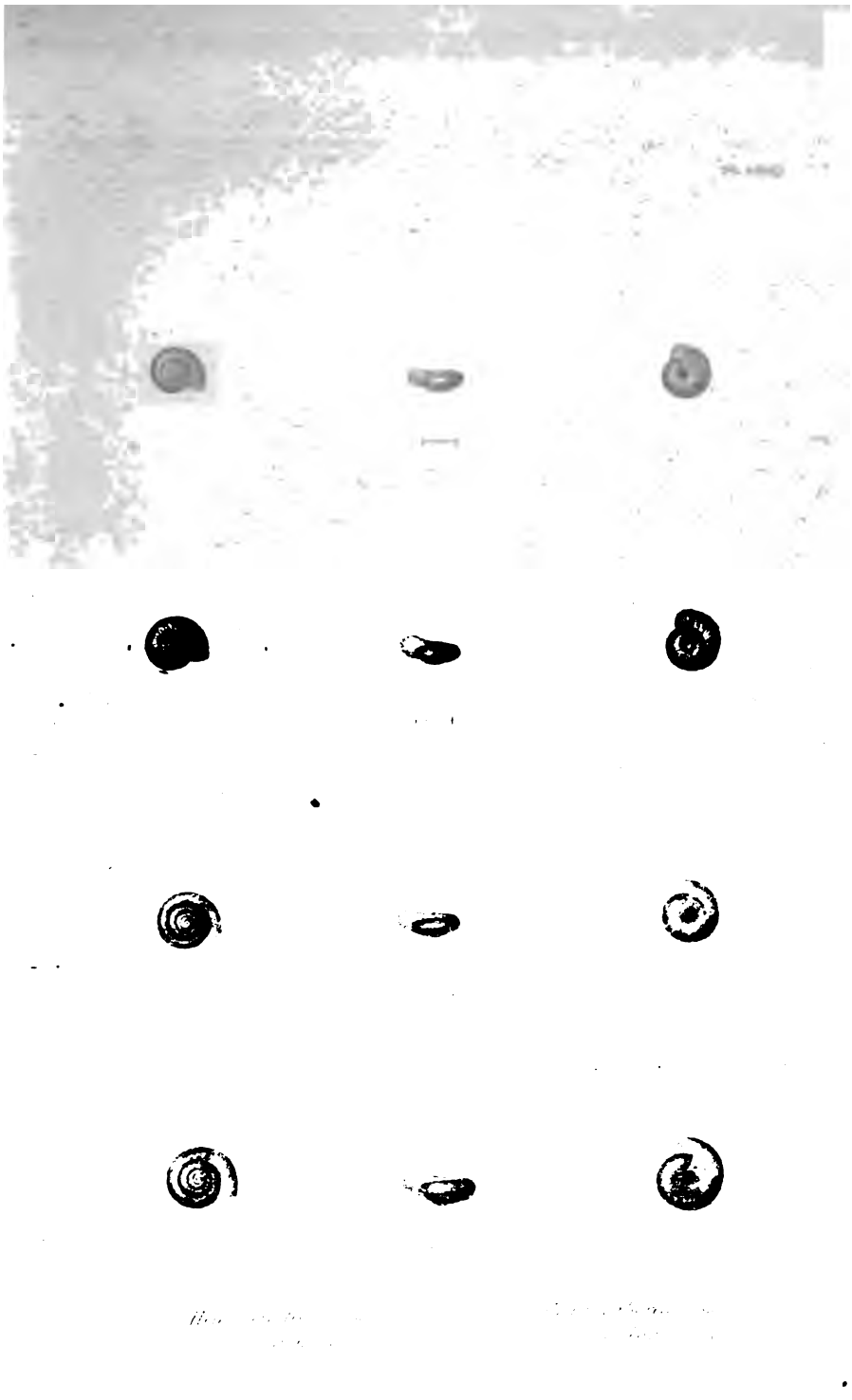


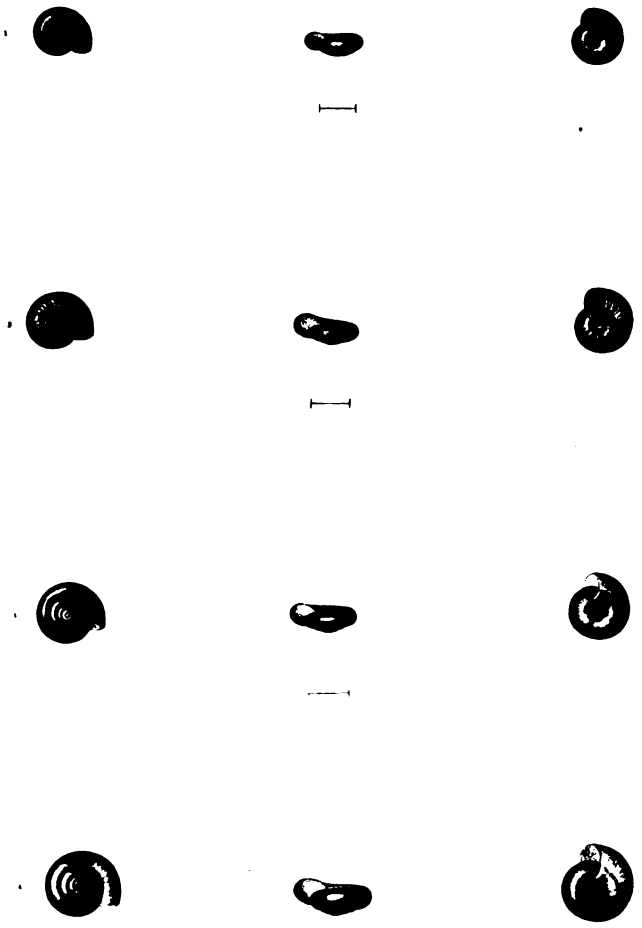


Helix tridentata, say
Variety fallax

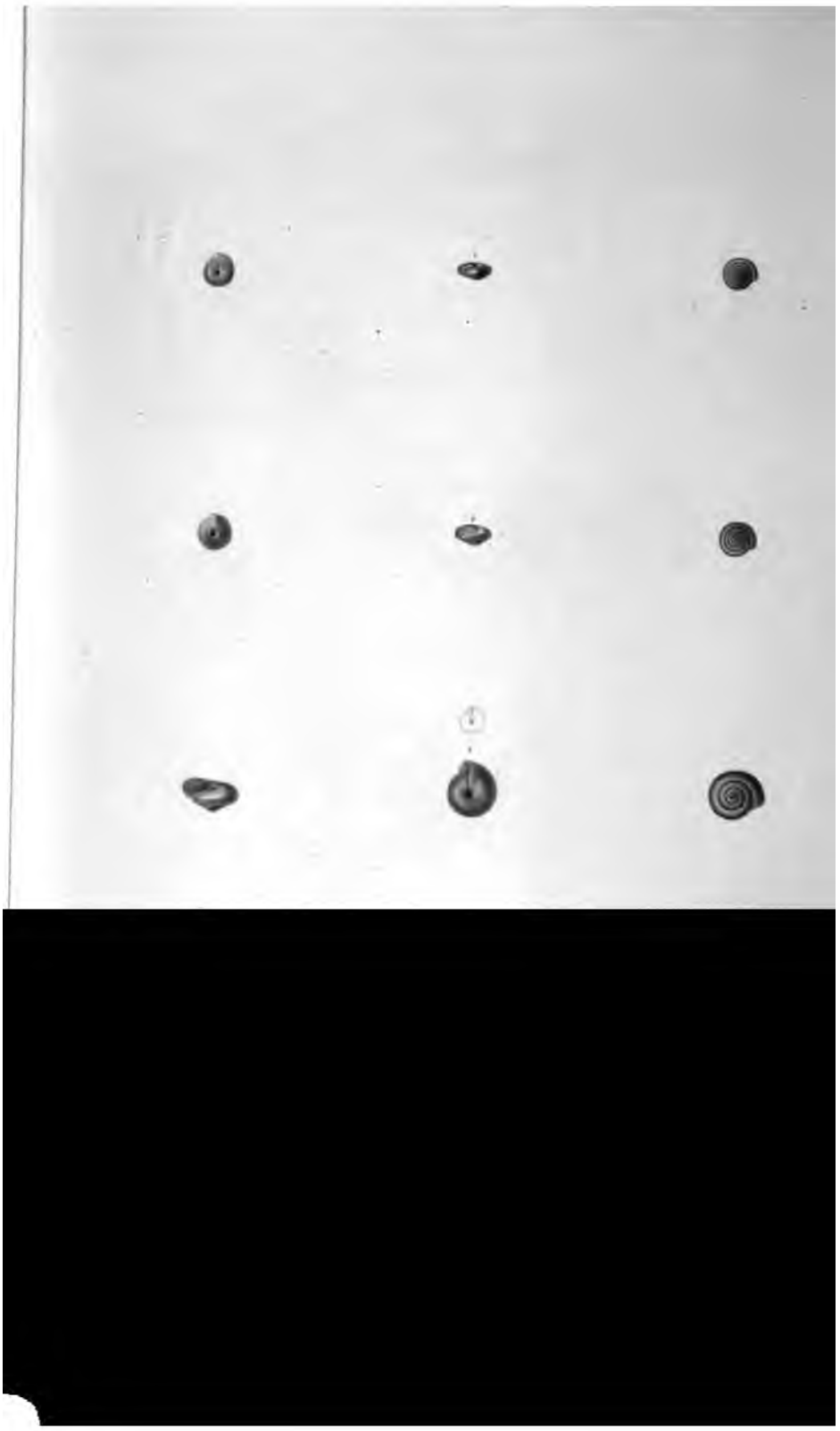
Hutting del. A. C. Warren Sc.

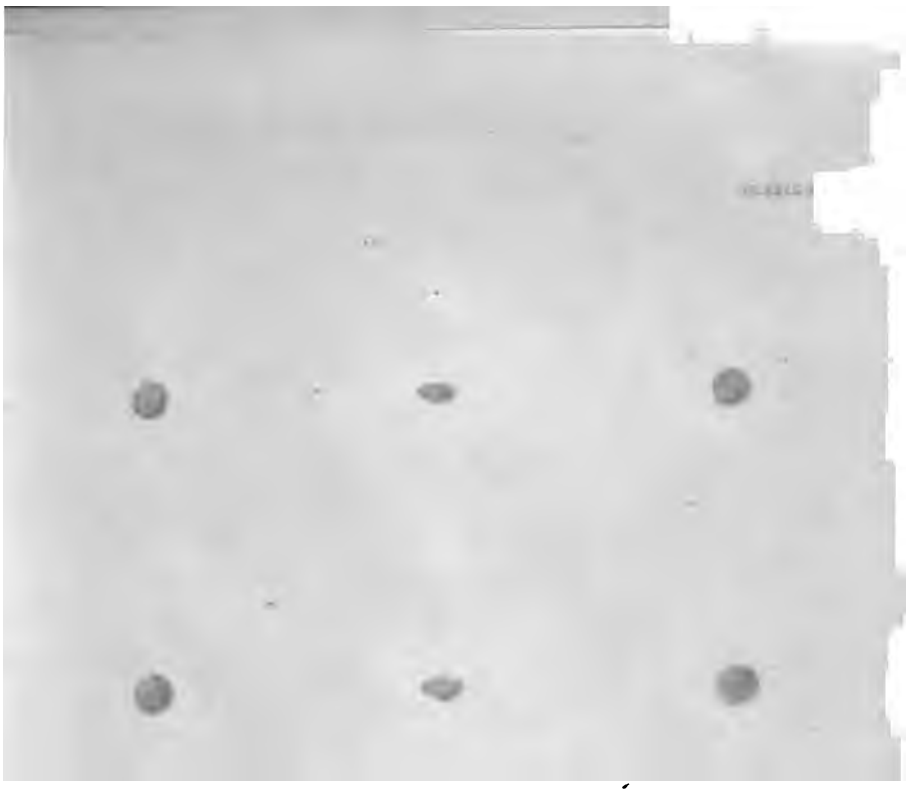


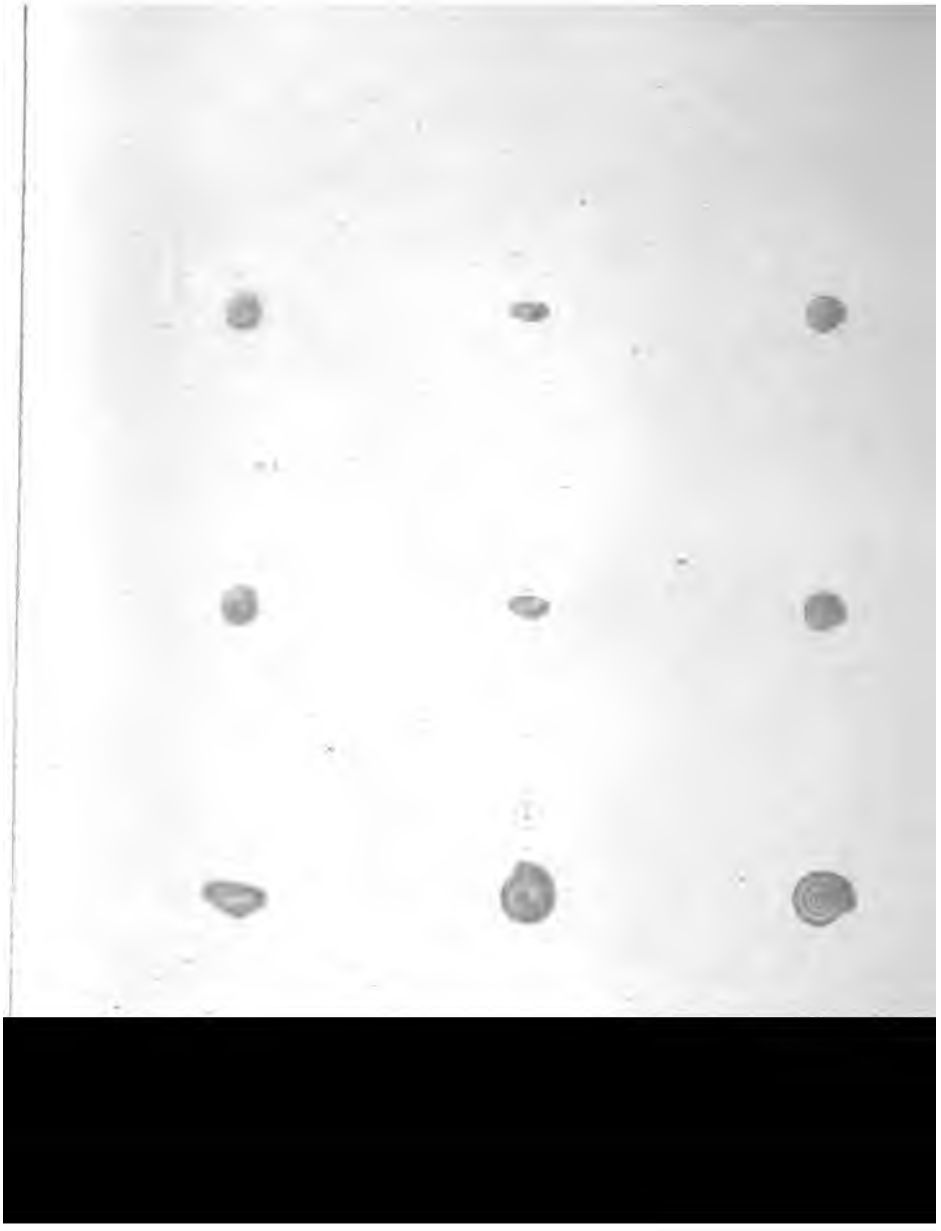


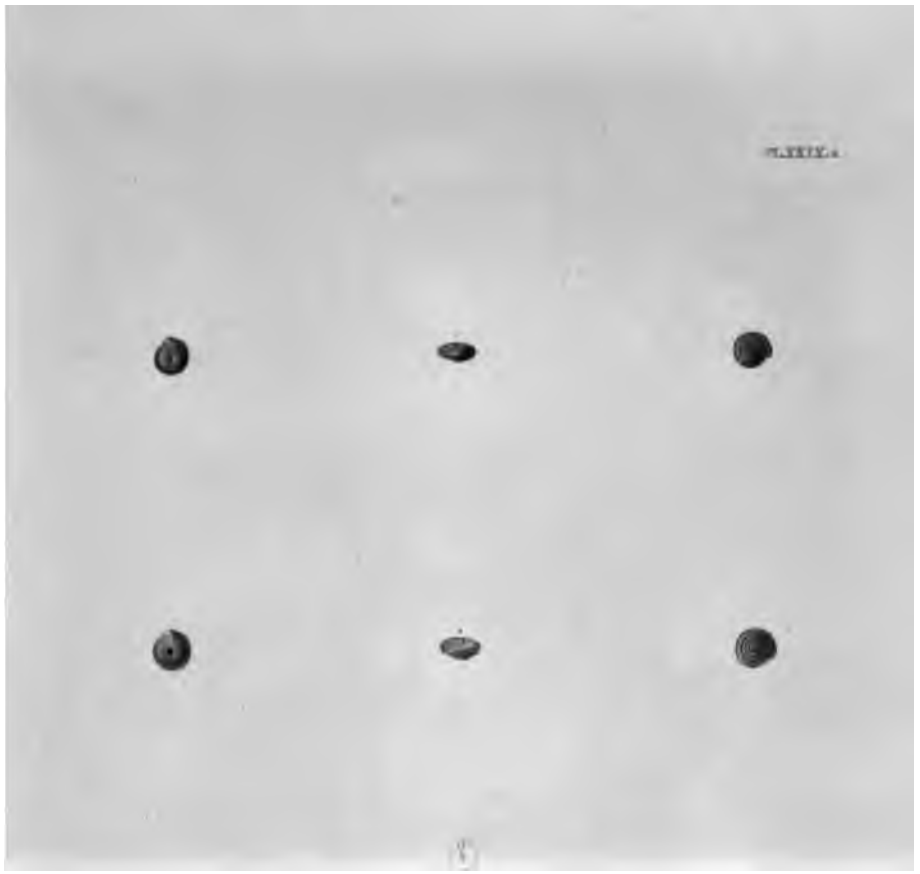


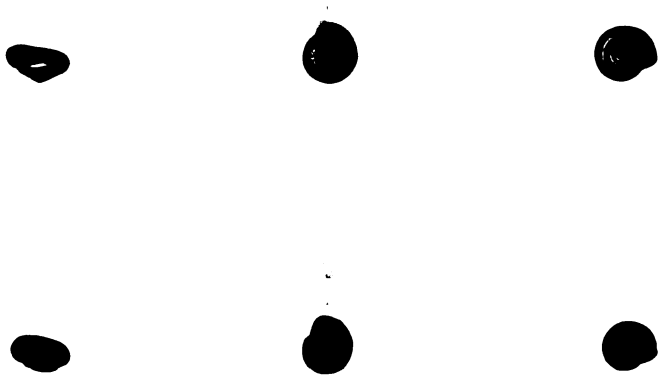
1 *Helix electrina*, Gould
2 *dentata*, Say
3 *Helix arborea*, Say
4 *cellaria*, Mull



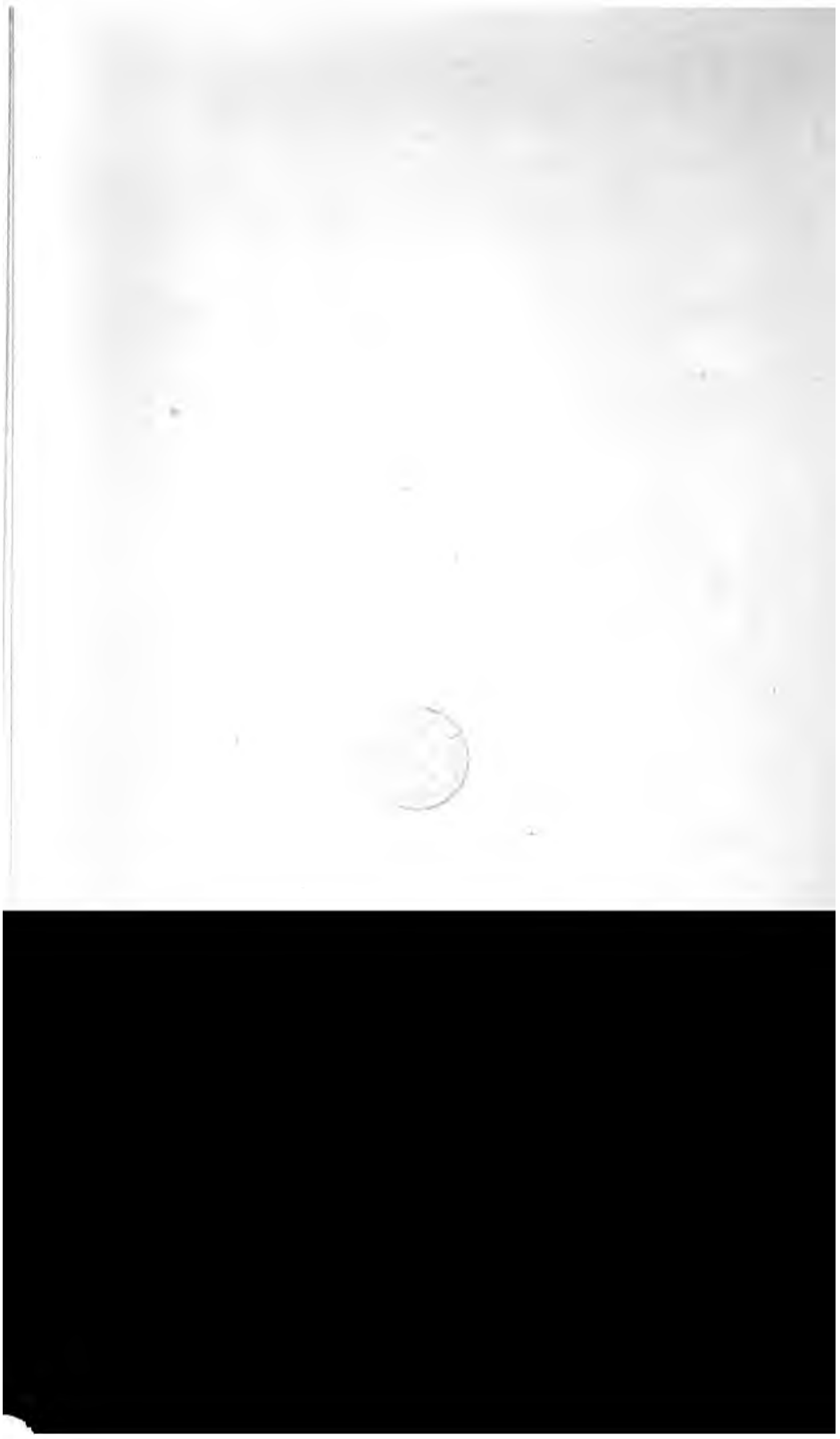


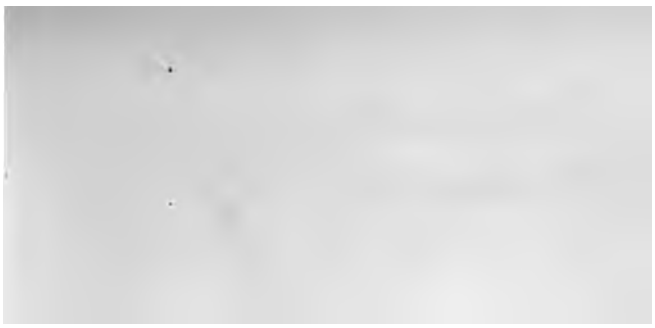


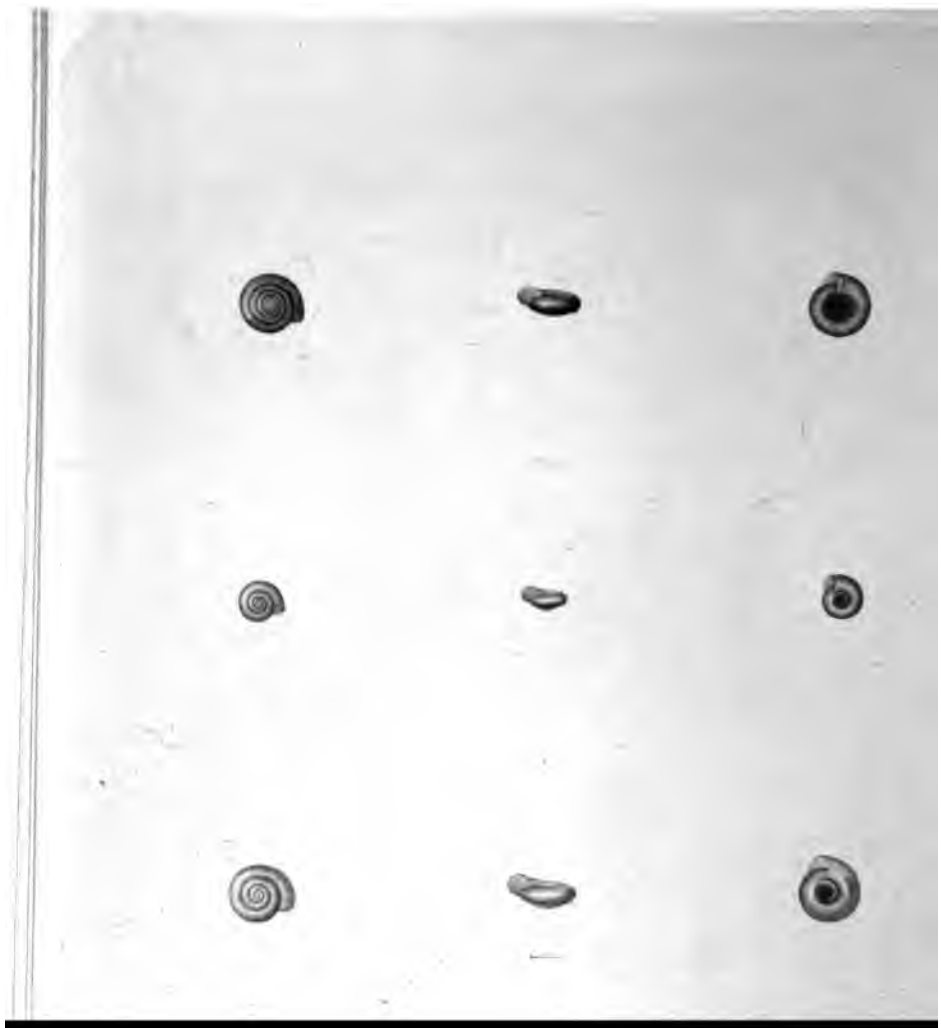


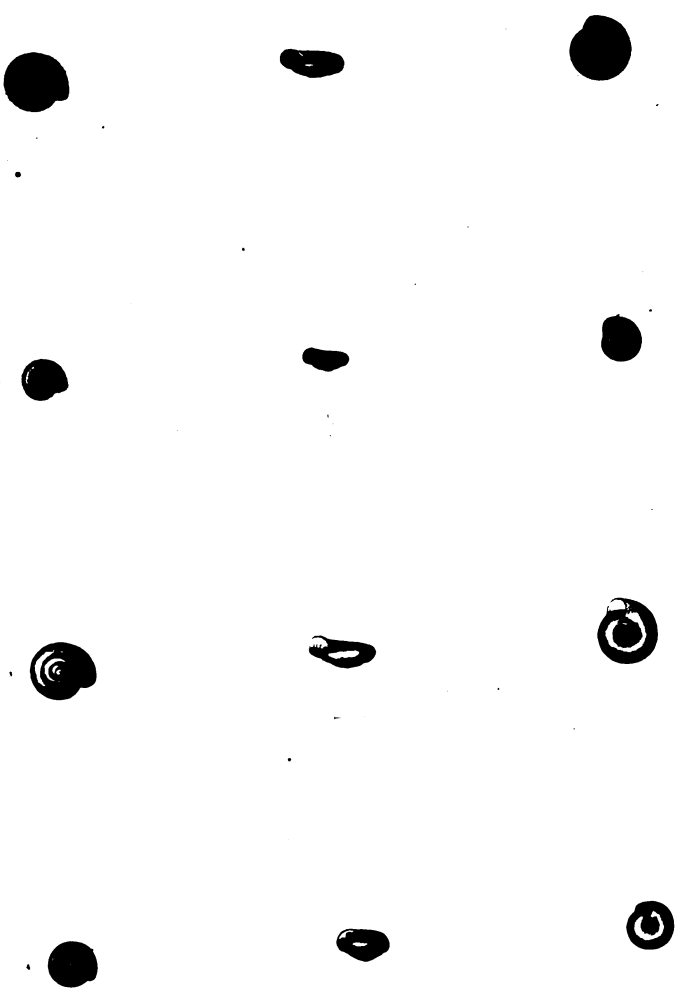


Helix capsella, Gould. *Helix selenina*, Gould.
Ottonis, Pfeiffer. *saxicola*, Pfeiffer.



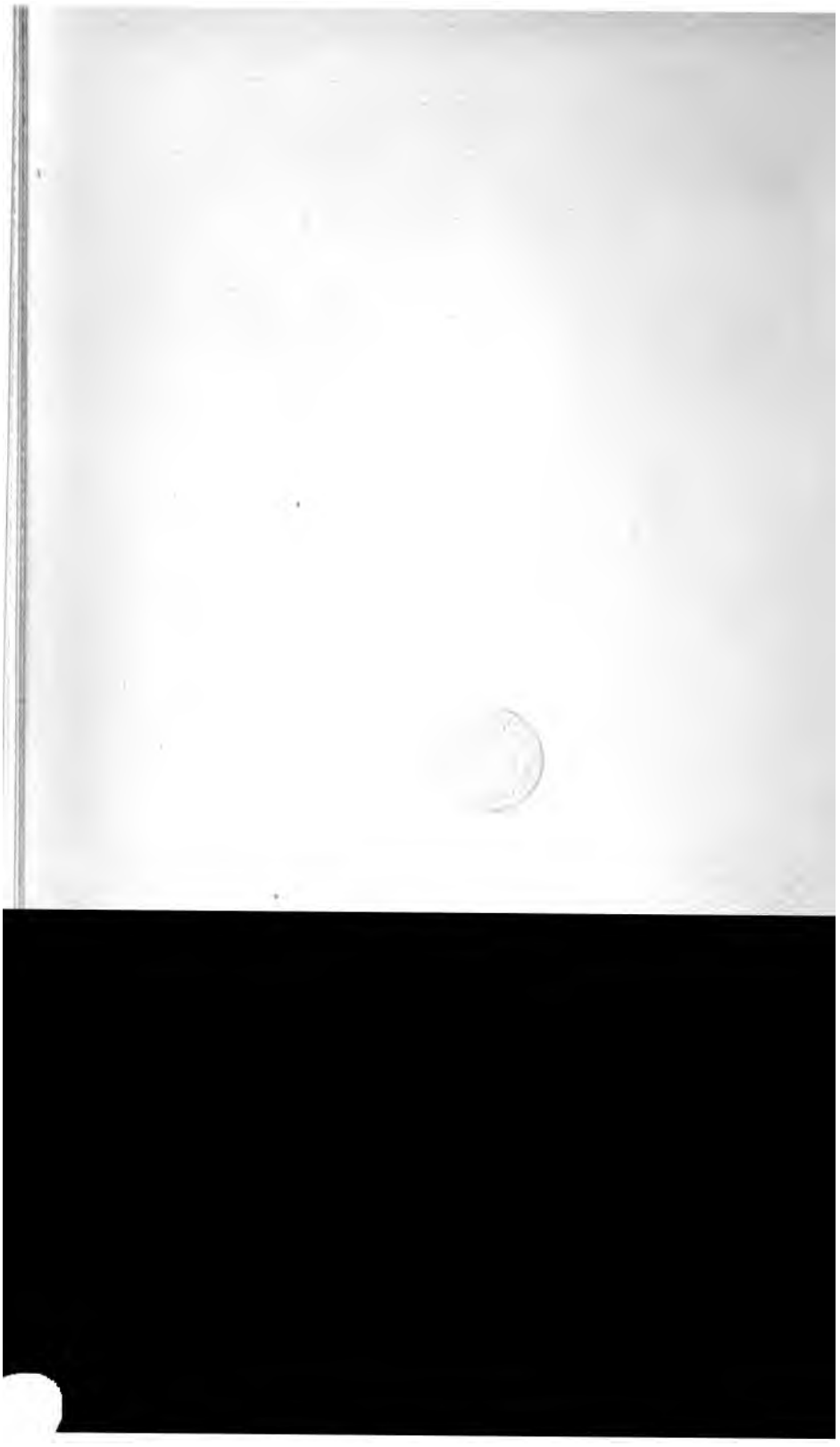




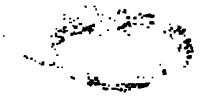


1. *Helix perspectiva.* Say
   lamatula. Binney

2. *Helix striatella.* Anth
   interna. Say

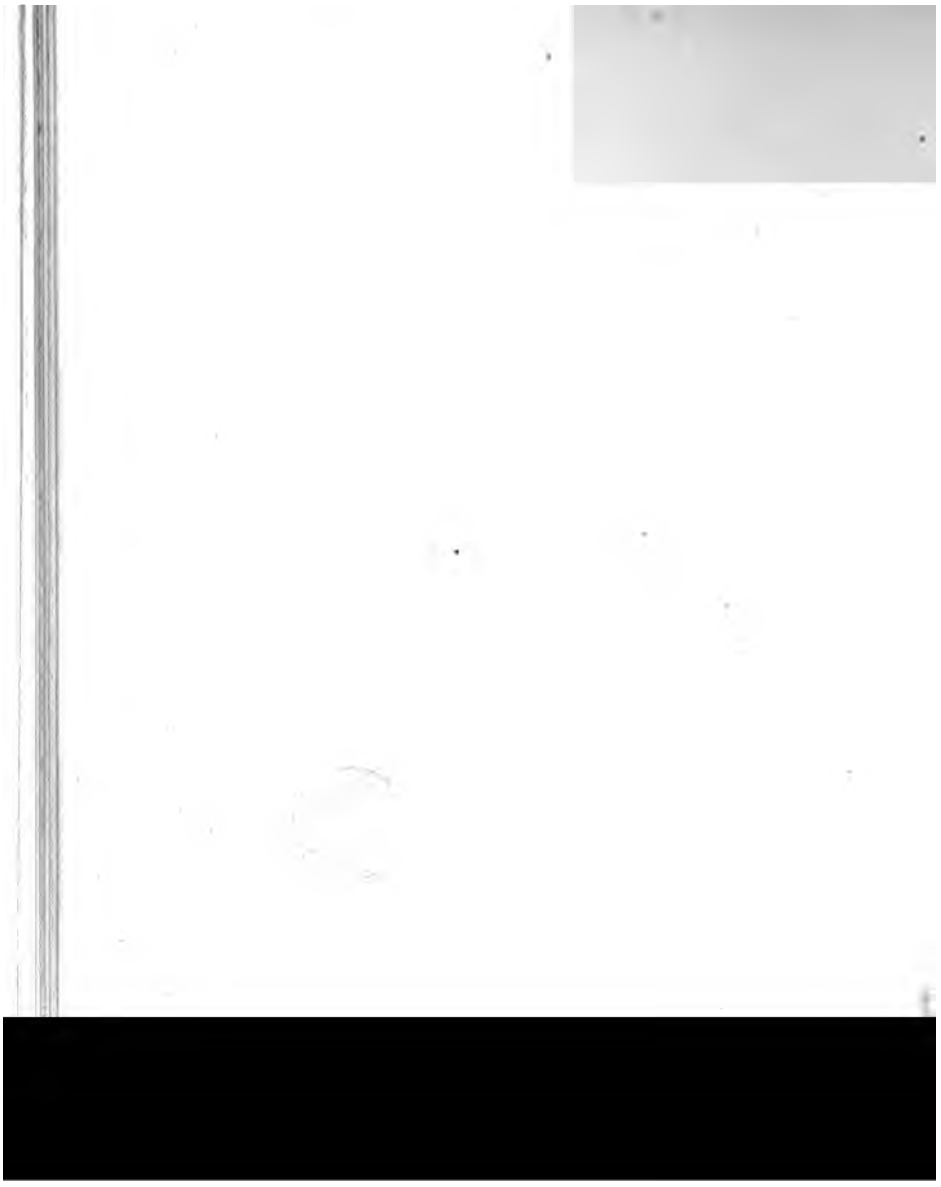


Helix fulminosa. Lamk.



Helix fuliginosa, Griffith.

Sutton del. Alex Lawson Sc.

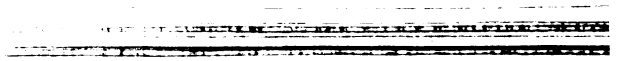


Helix lucubrata. Say

Helix lucubrata. Say.

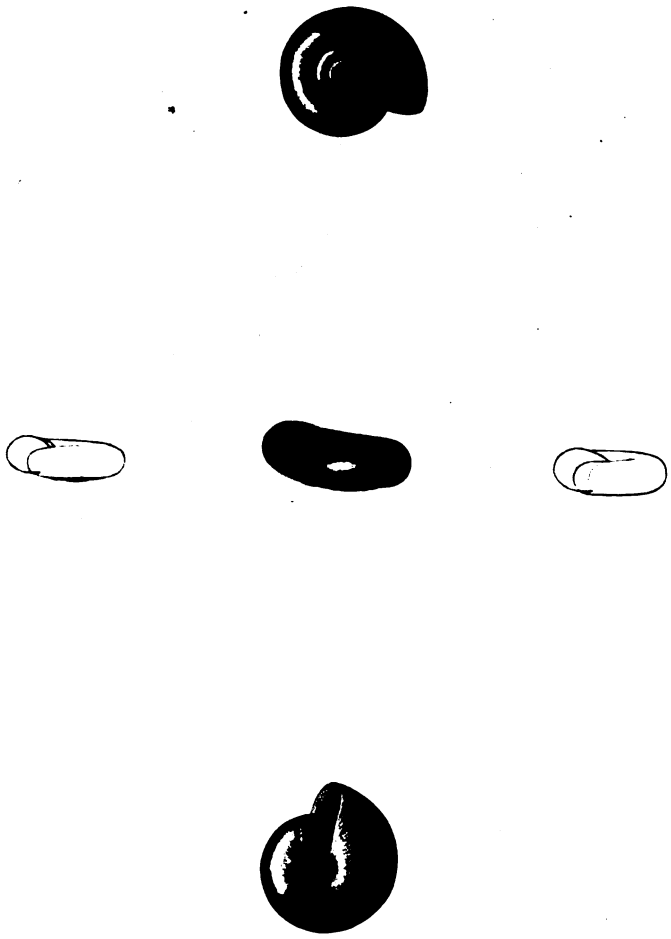
Alex. Lawson S.

Adams del



Pl. XXXIII.

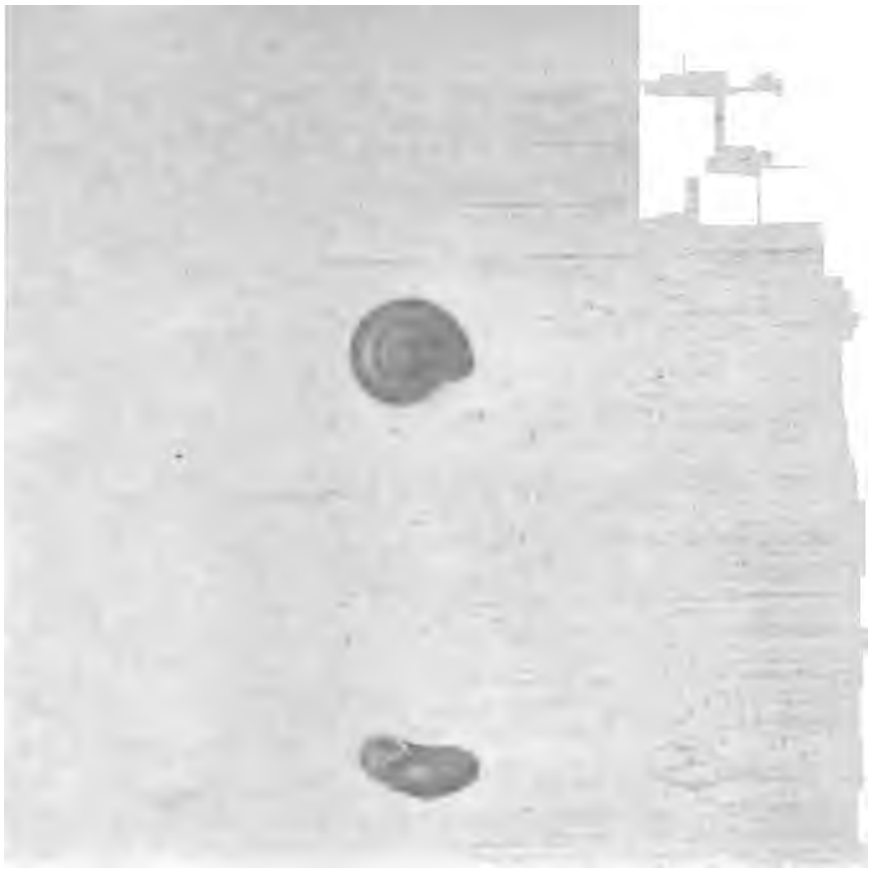
Helix subplana

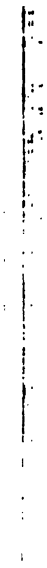


Helix sub plana

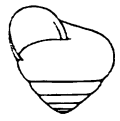
Mrs H.E. Lawson del.

Geo. Lawson Sc.

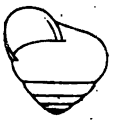




Helix inornata, Say.



Pl. XXXV.

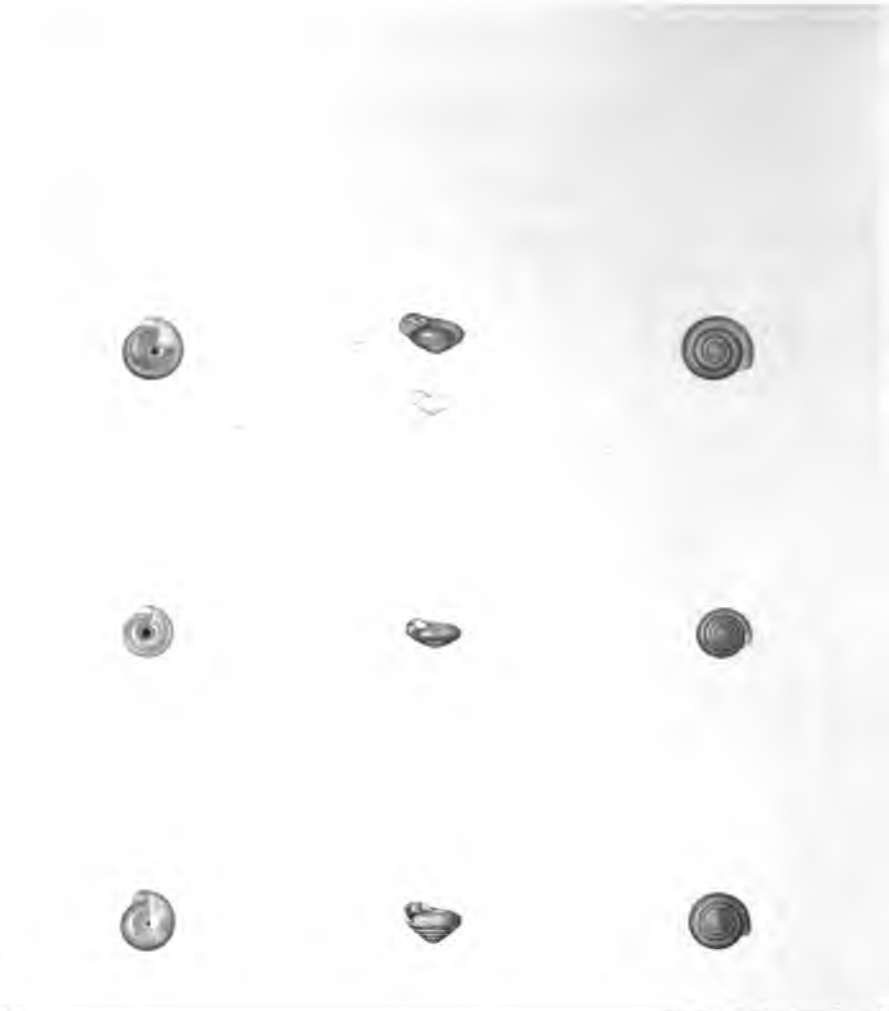


Helix ligera, Say

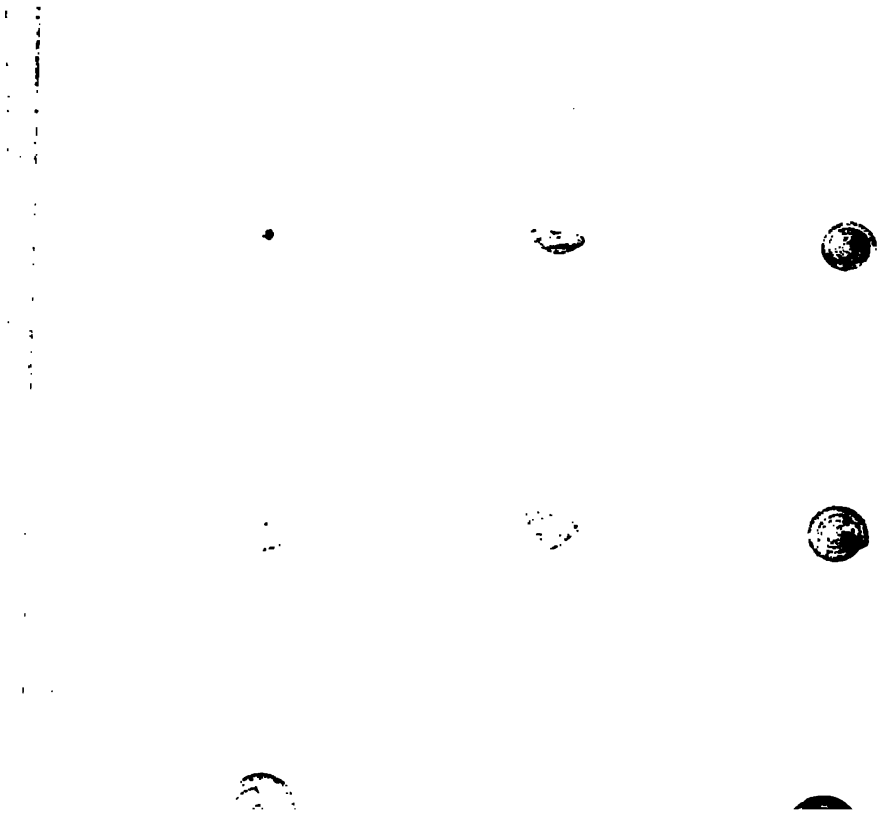
Max Helen F. Lawson del.

Alex Lawson Sc.

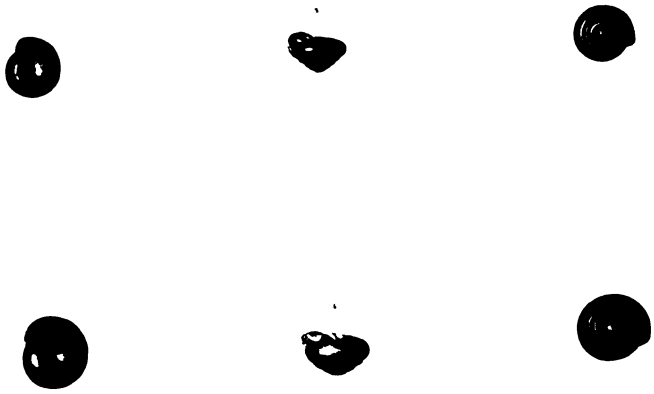
Helix interlexta.



Helix suppressa, Say. Helix [illegible], Say.
Helix gularis, Say.



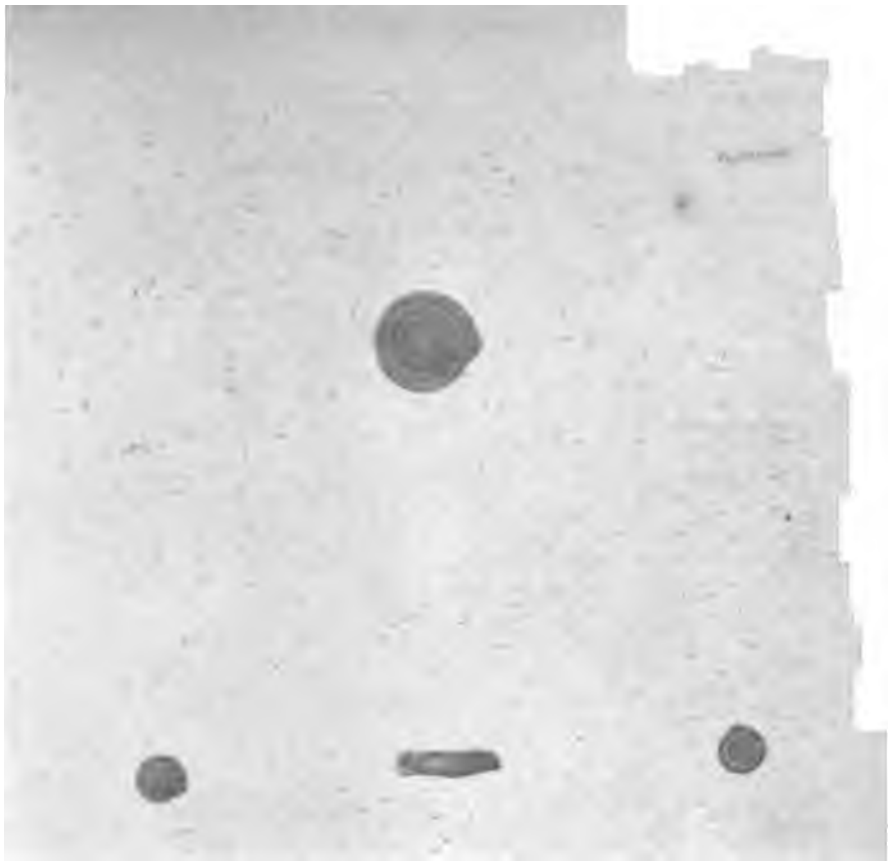
PL. XXXVII.



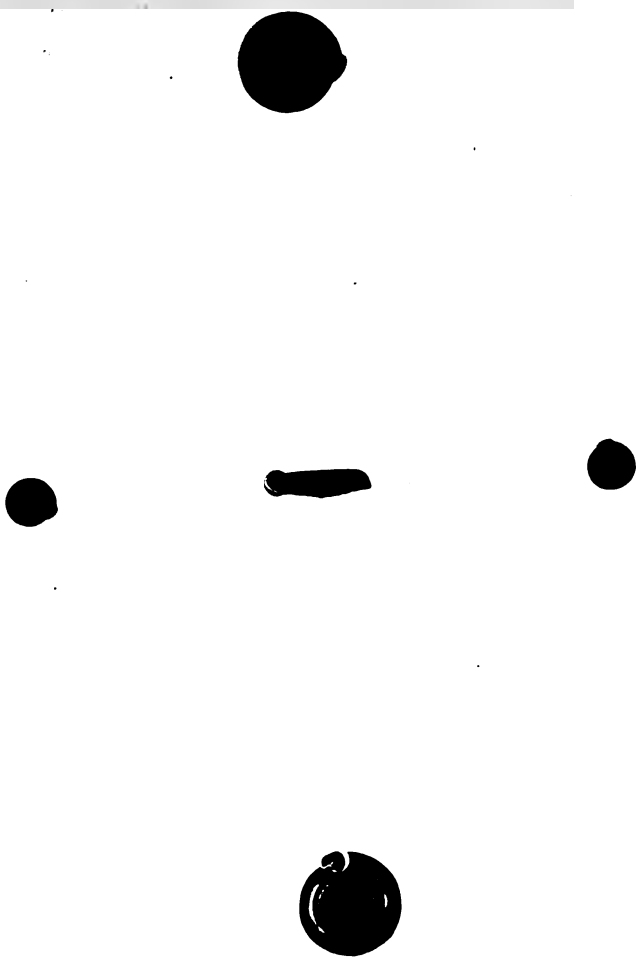
1 *Helix suppressa*, Say 2 *Helix lasmodon*, Phillips
3 A *Helix gularis*, Say

W H Tappan Sc

Nutting del



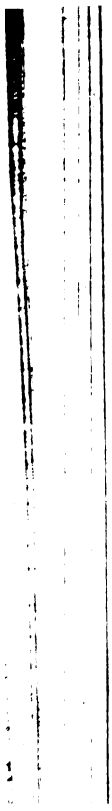
PL. XXXVIII.

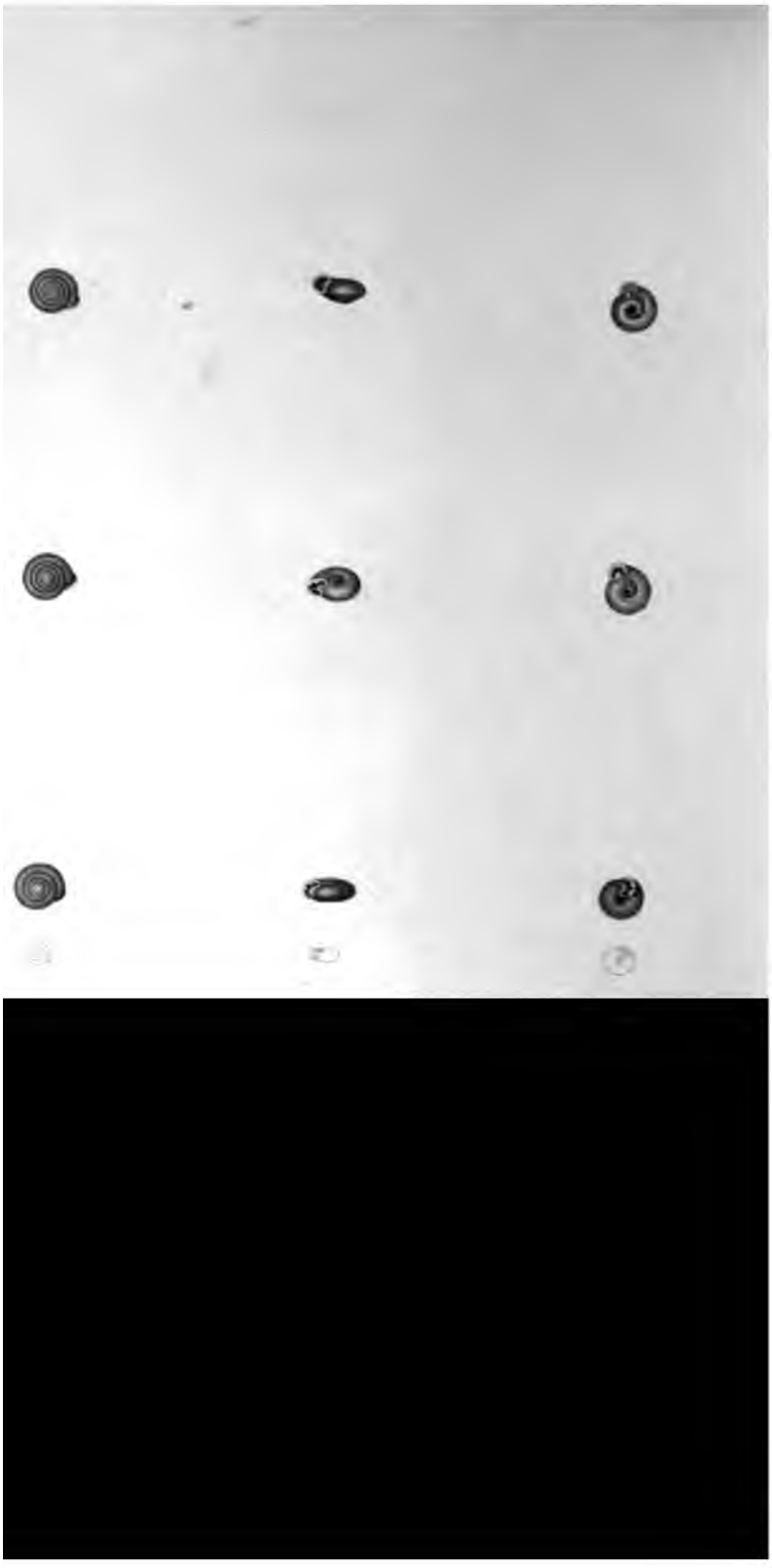


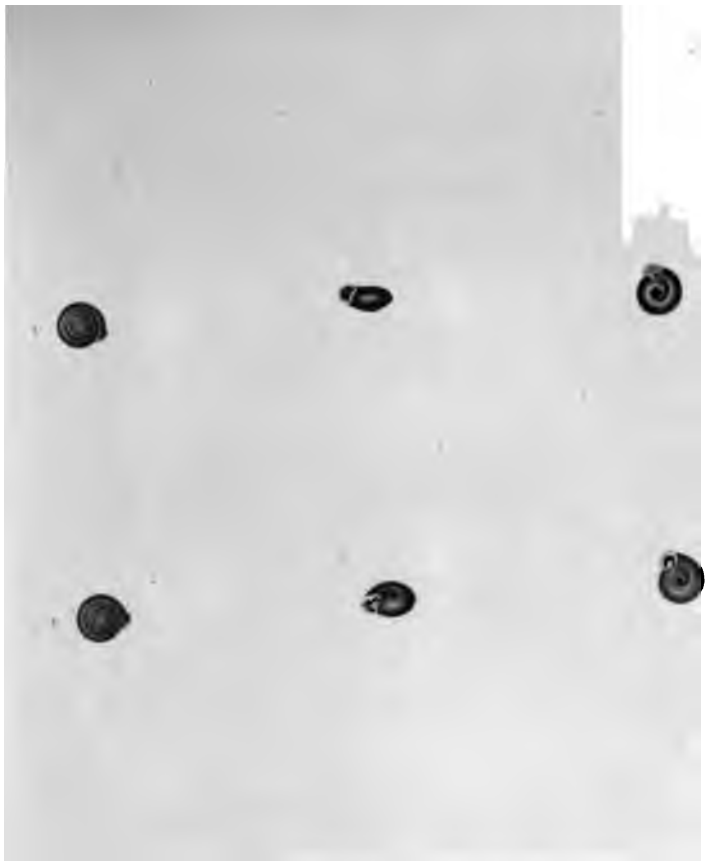
Helix Septemvolva, say

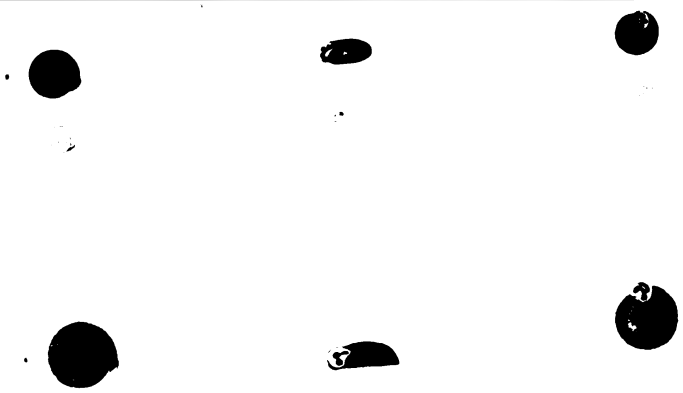
A. Warren Sc.

Nutting del.







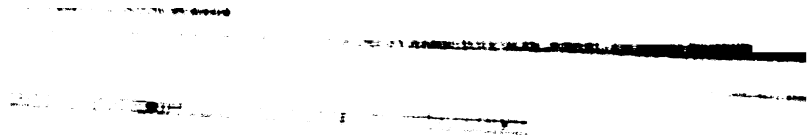


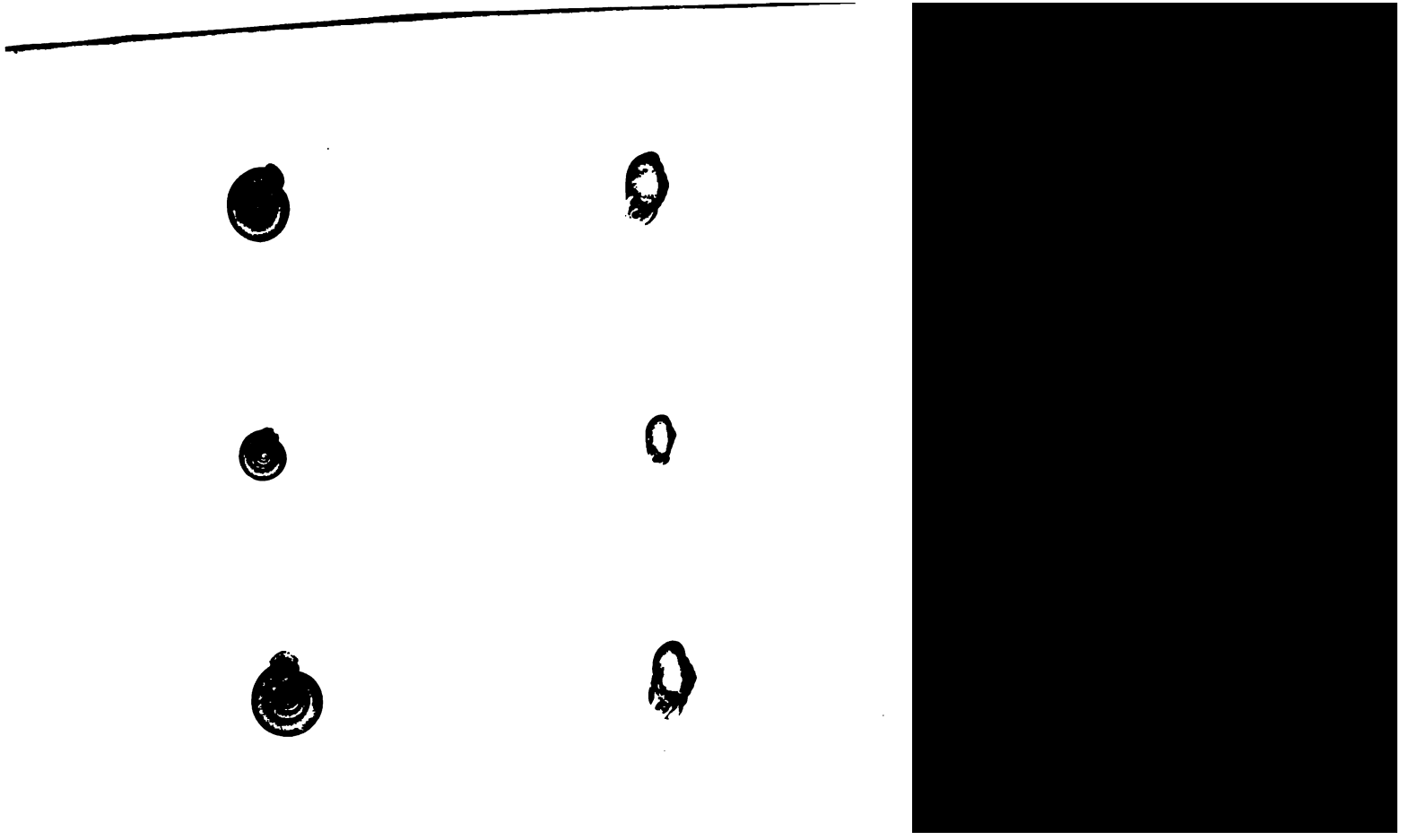
1 *Helix Septemvolva.* Say
2 *plicata.* Say

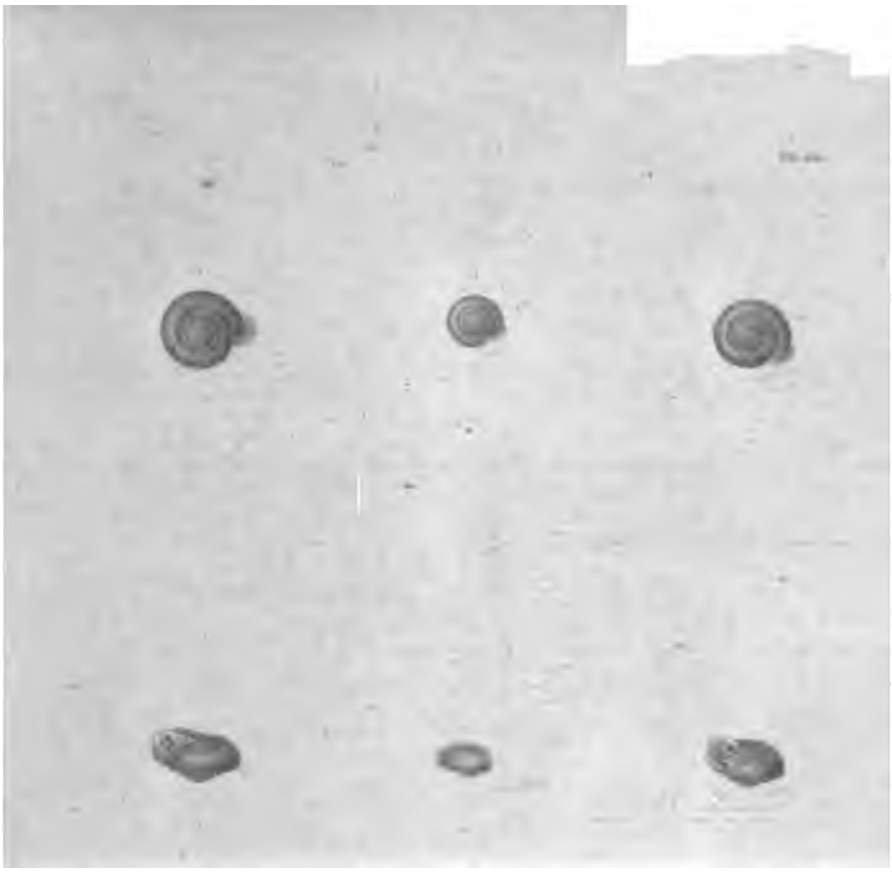
3 *Helix pustula* Say
4 *fatigiata.* Say

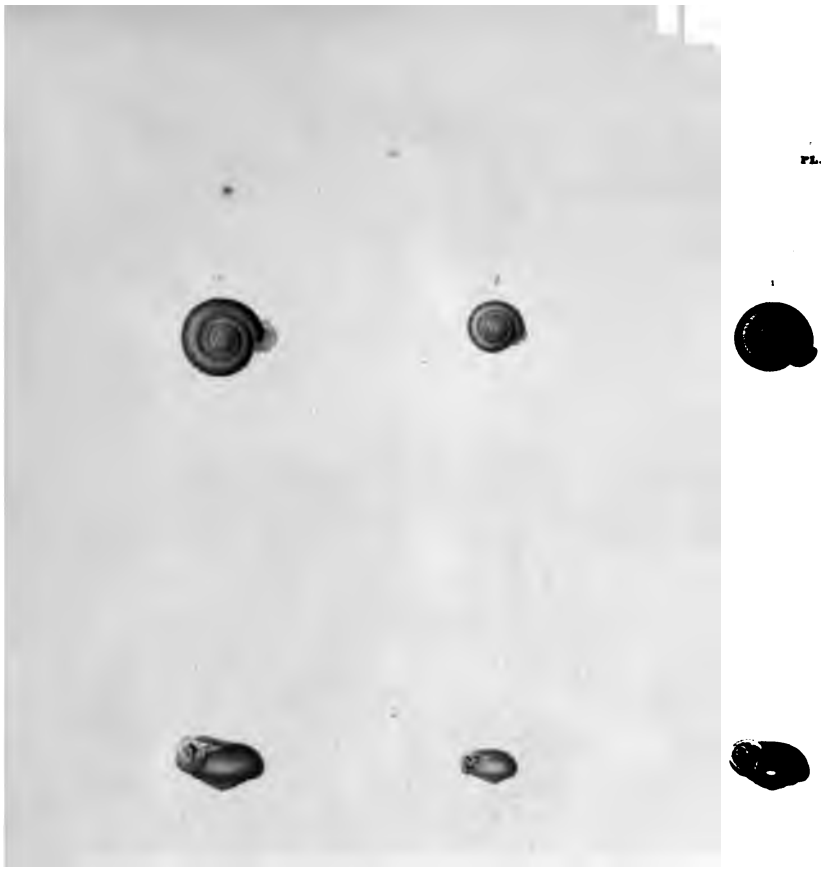
A. C. Warren Sc.

Nuttall del.

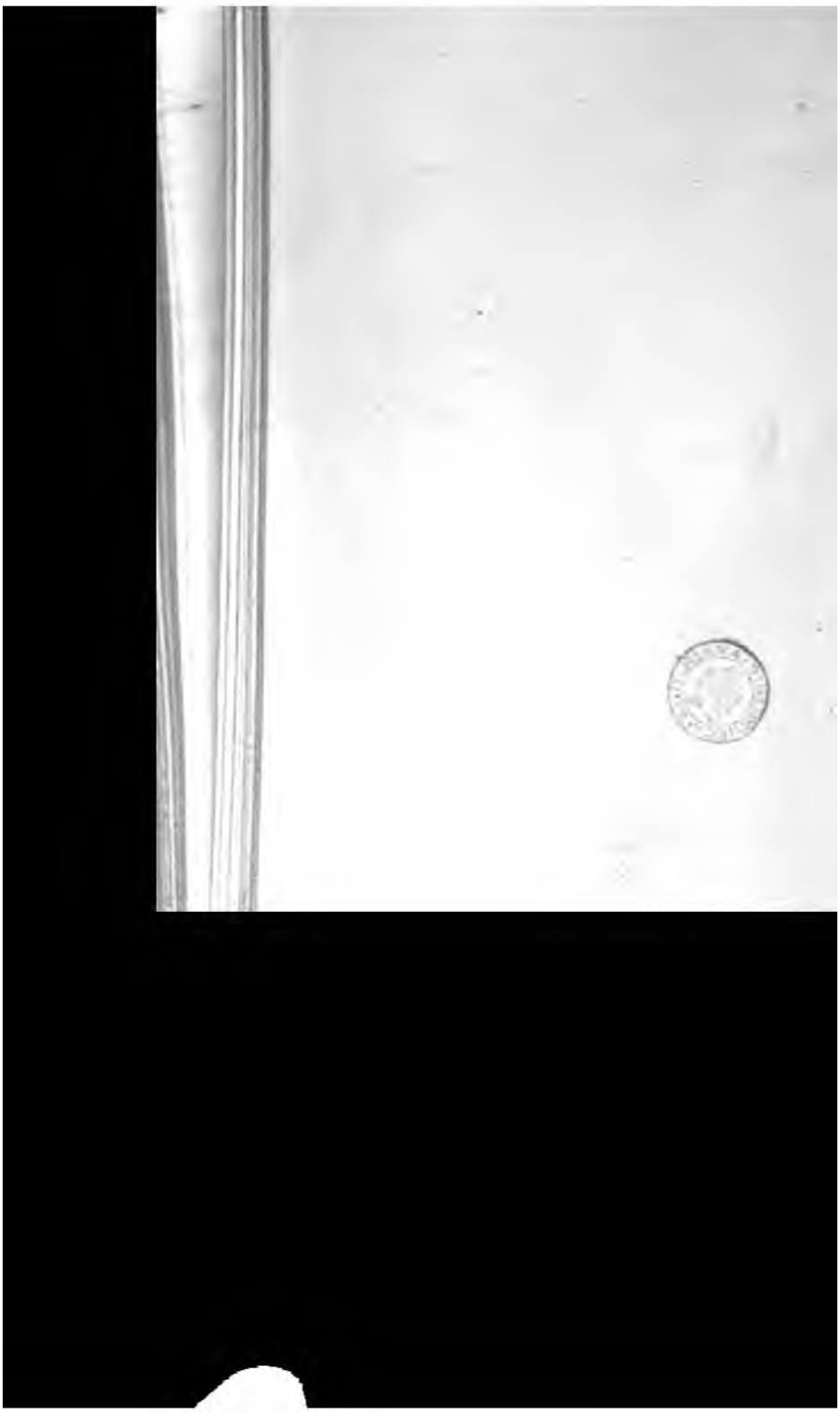






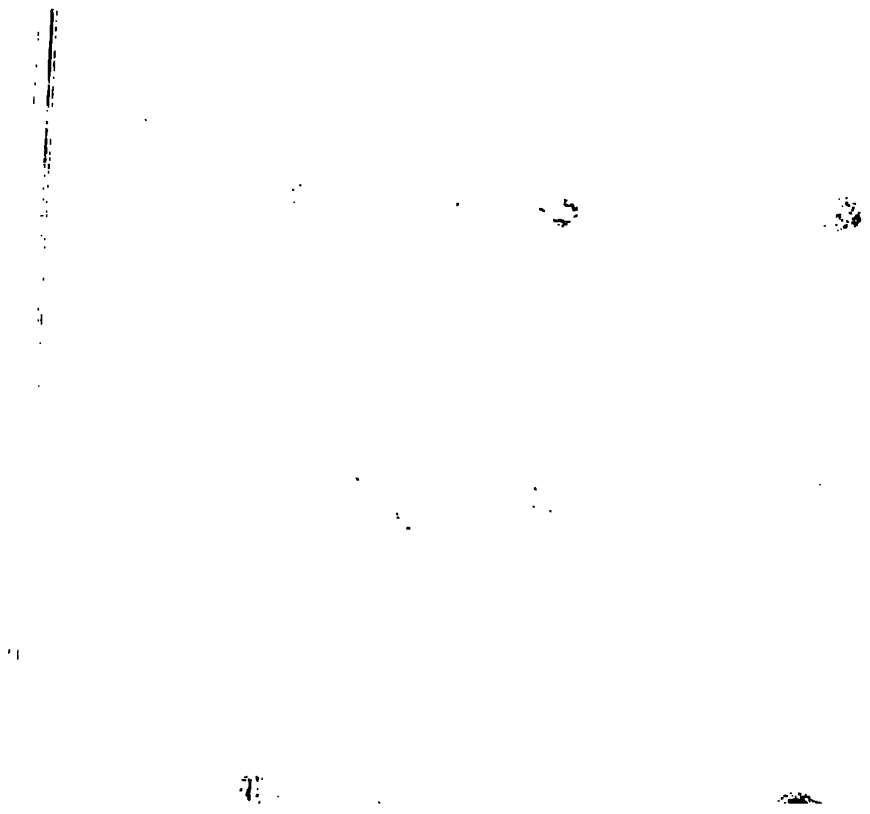


1. *Helix auriculata*, Say.
2. *variety avara*, Say.



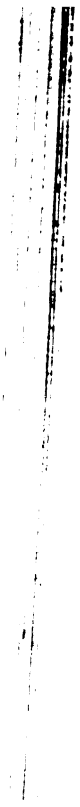
Helix leporina — *Helix germana*

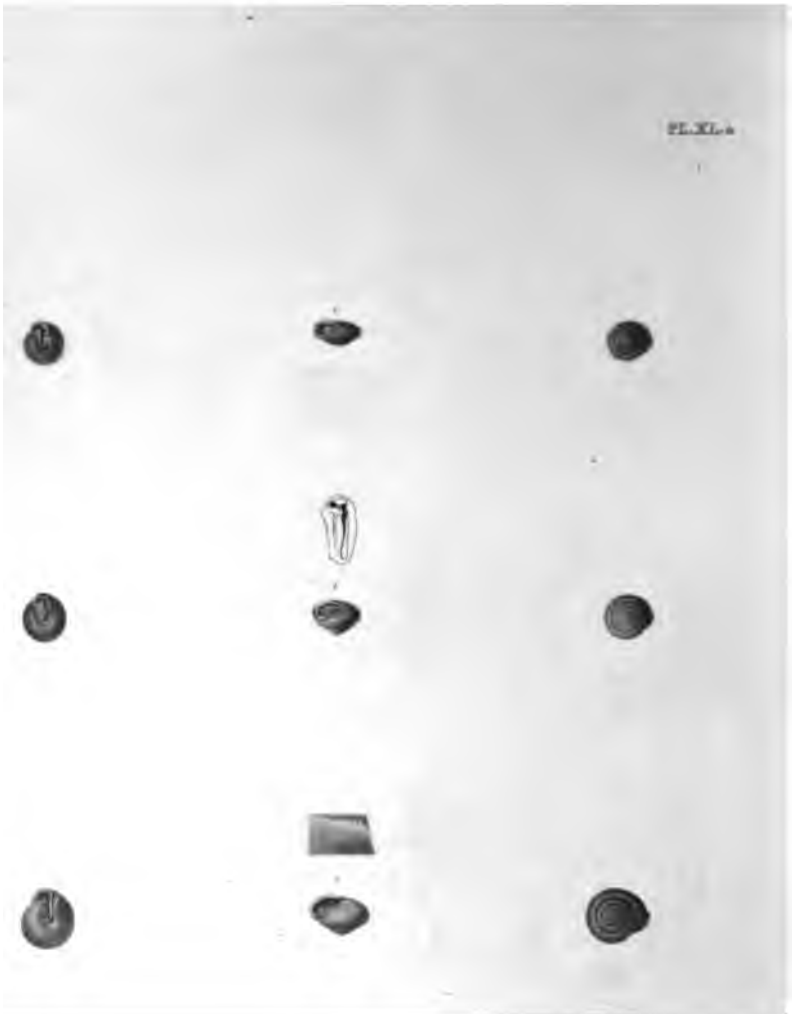
Helix [illegible] — *Helix* [illegible]

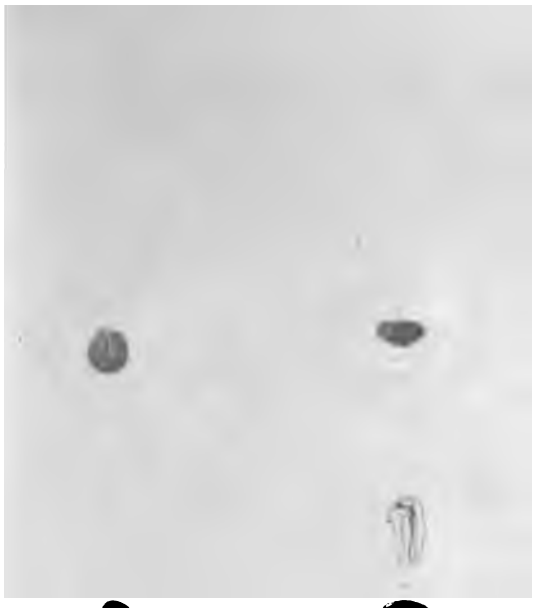


1. *Helix leporina*, Gould.
2. *Helix maxillata*, Gould.
3. *Helix germana*, Gould.
4. *Helix vultuosa*, Gould.

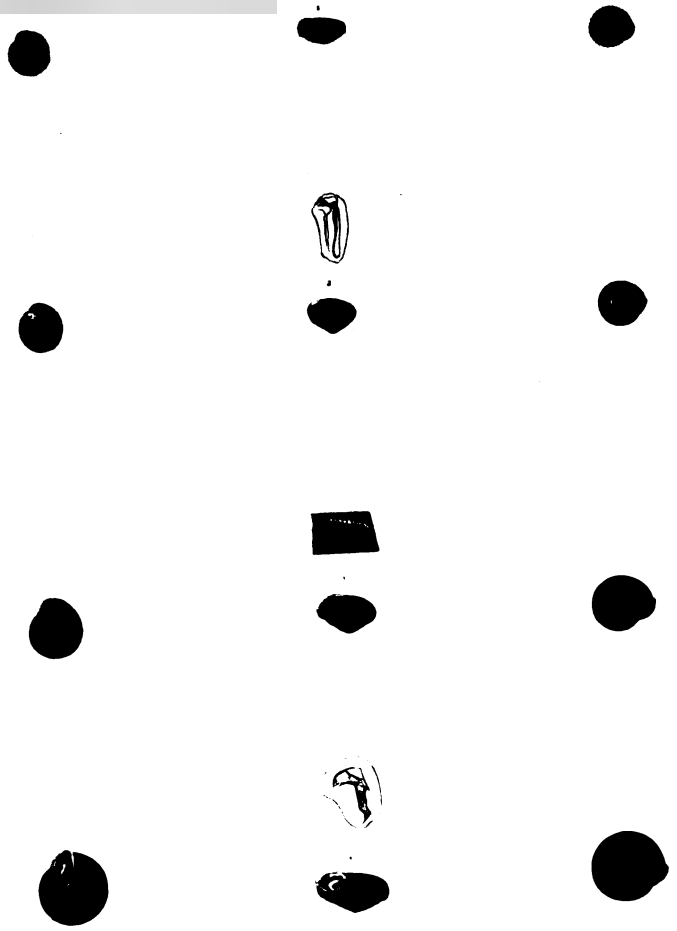
Imp. Delarue, Succr. Montagne Ste Geneviève 6.




PL. XL. a

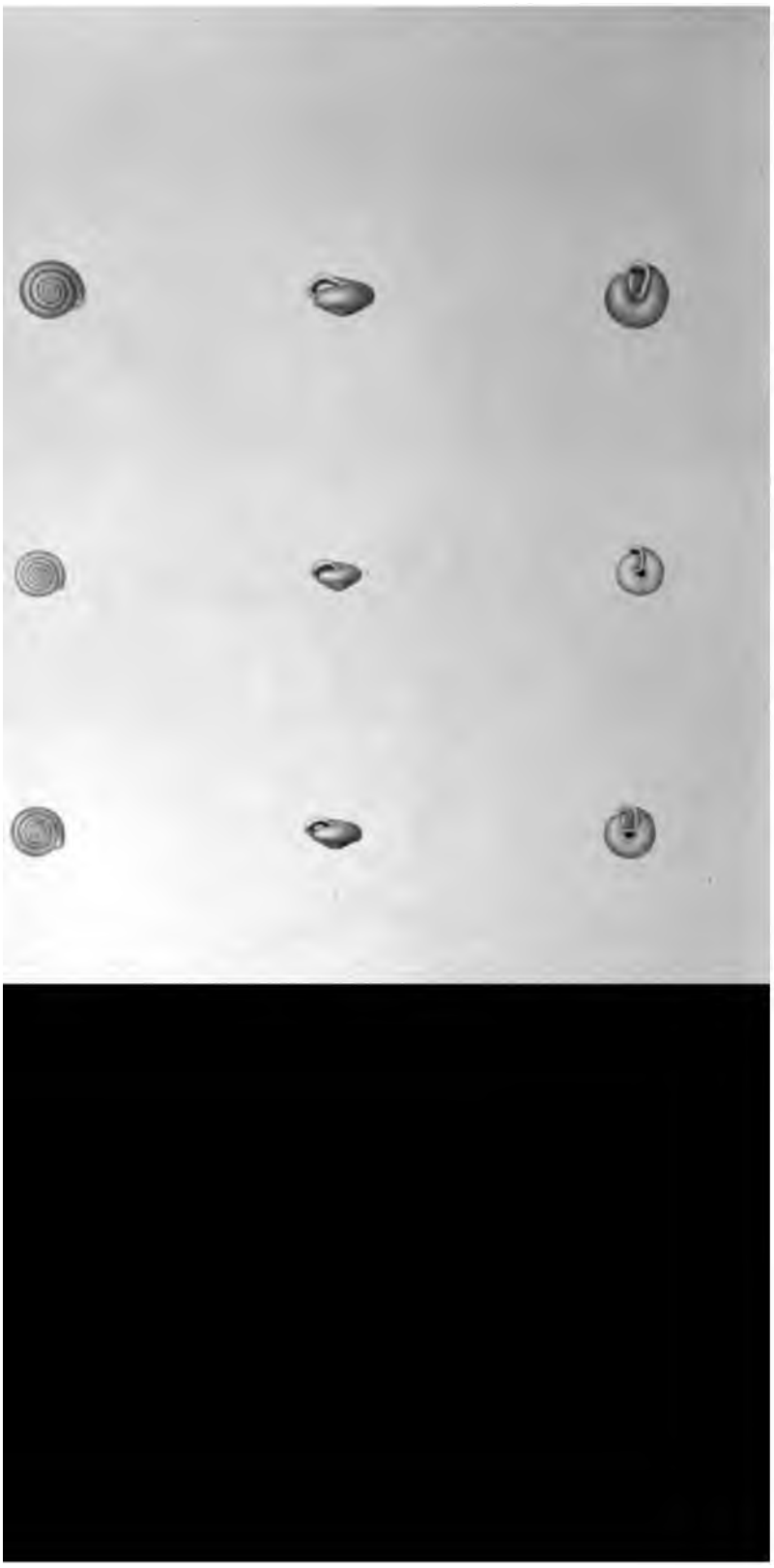


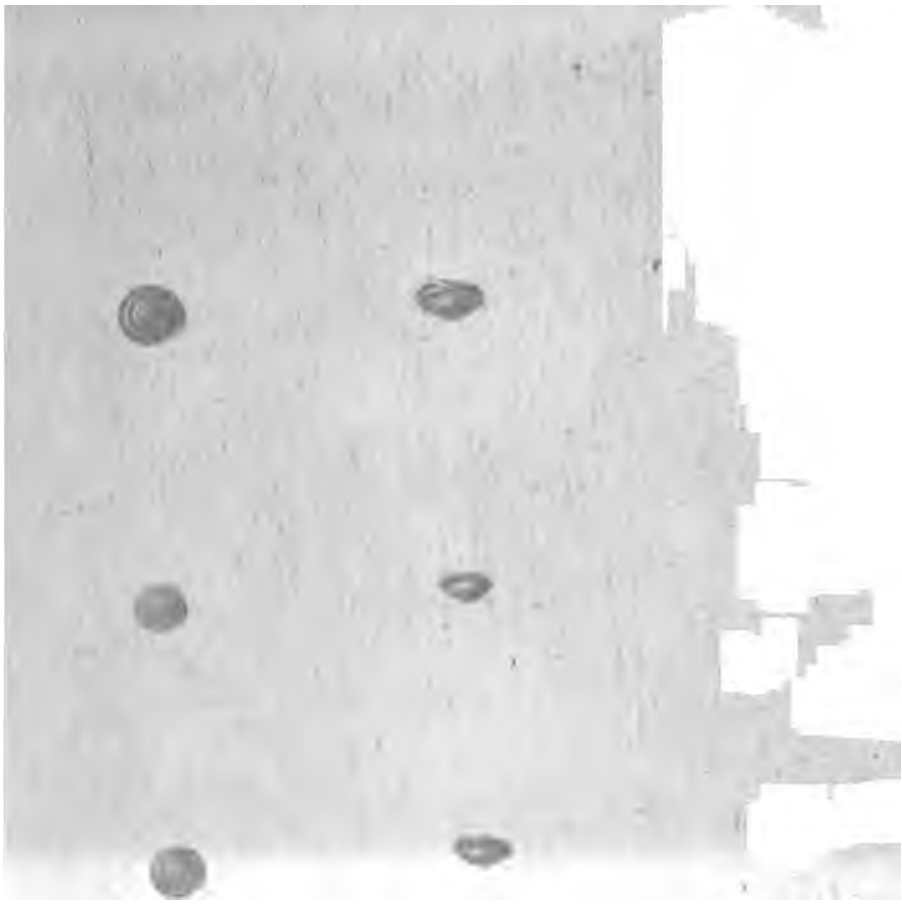
PL. XL. a

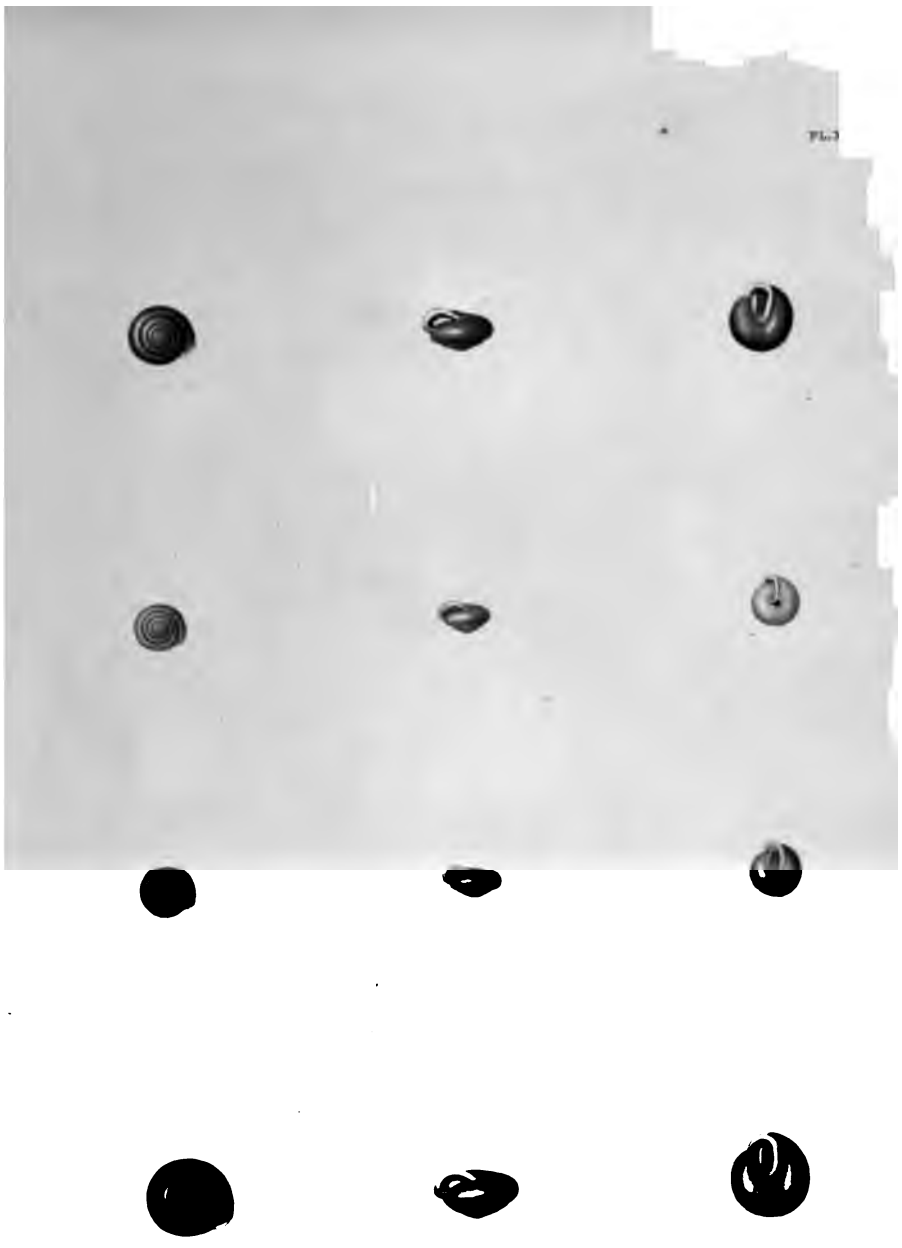


Helix leporina Gould. Helix maxillata Gould.

germana Gould. vultuosa Gould.



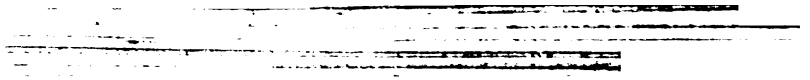


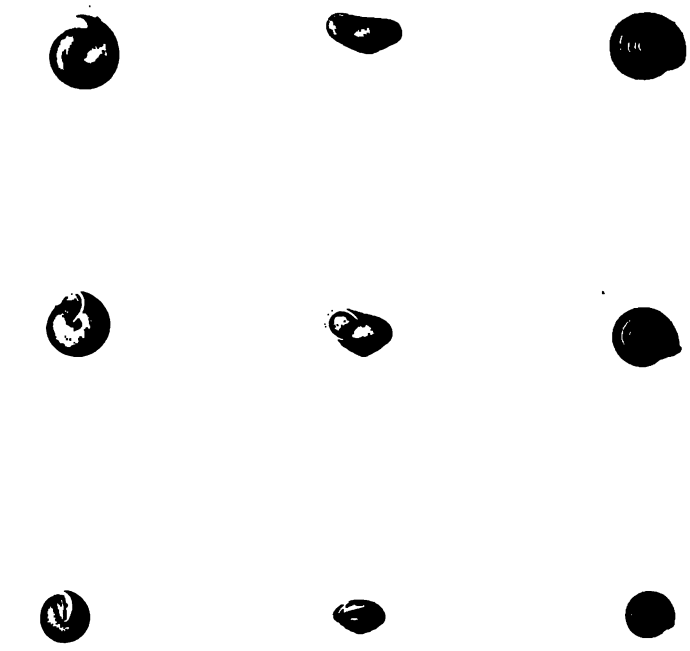


Helix monodon. Rackel

Miss Helen E Lawson del

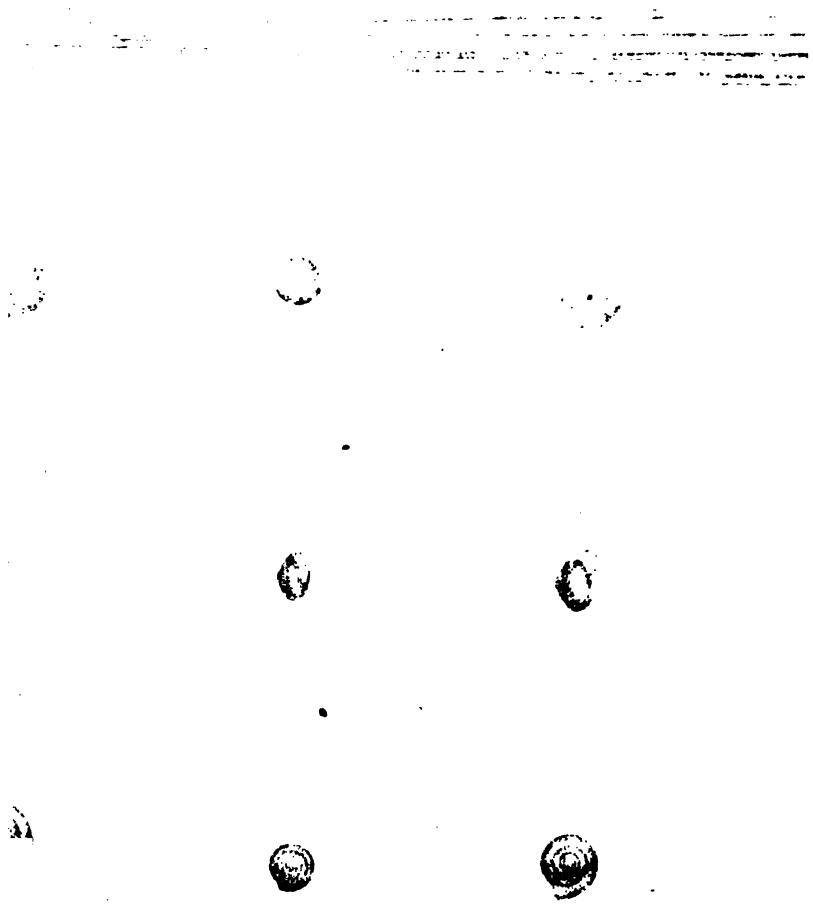
Alan Lawson Sc



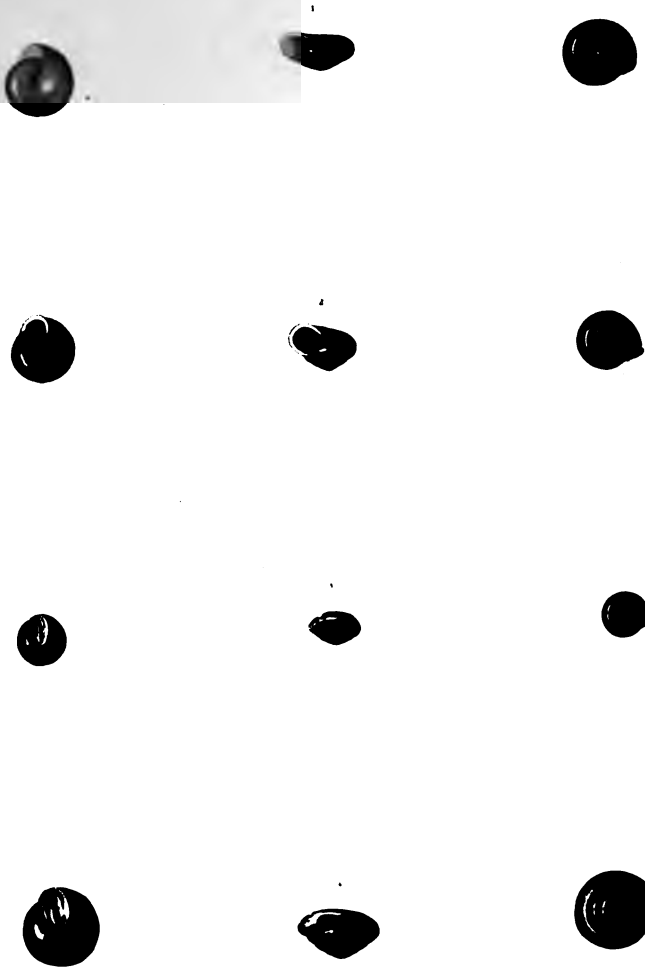


Helix [illegible] *Helix* [illegible]

Helix [illegible]



PL. XLII.



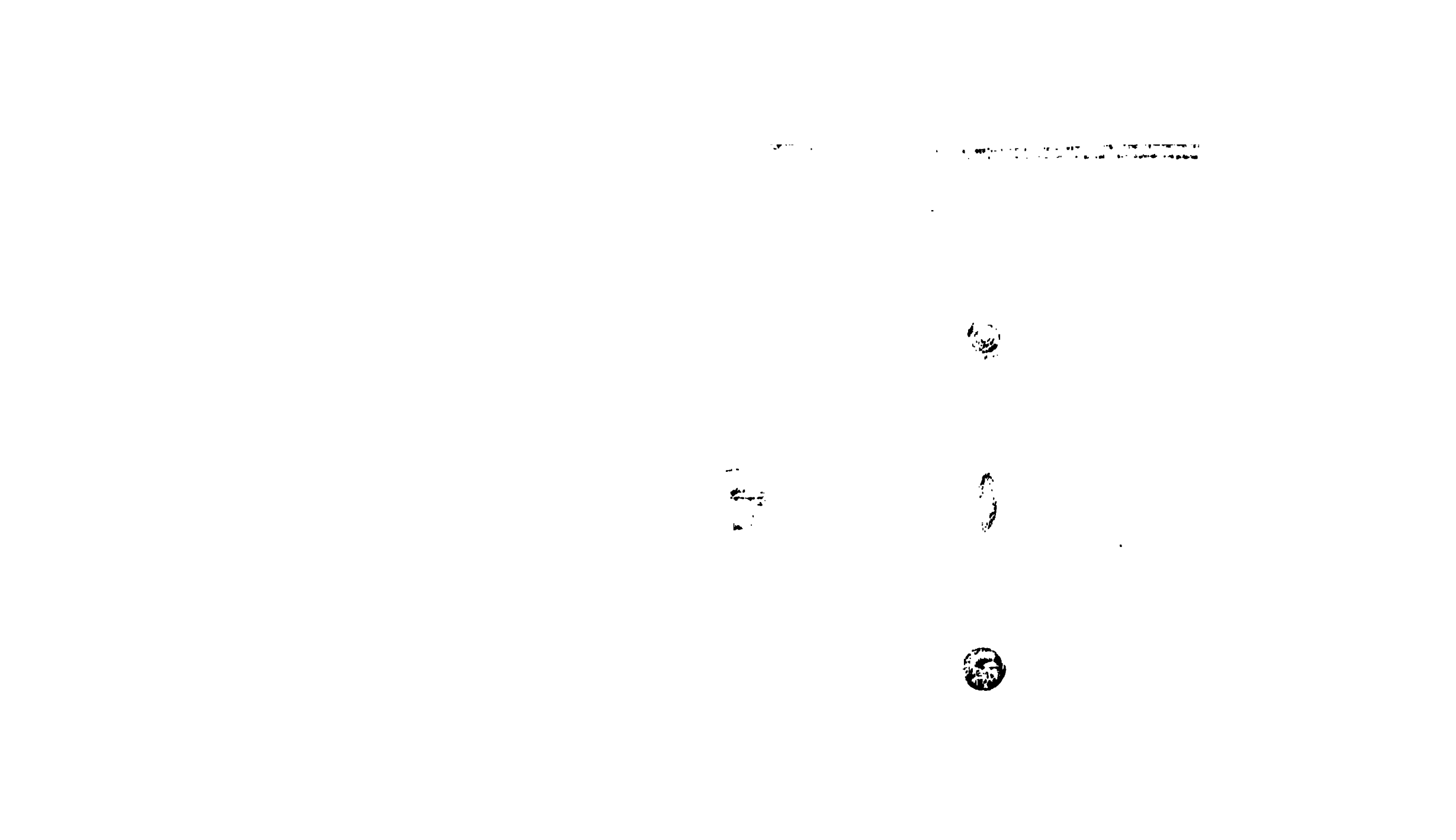
1 *Helix demissa* 2 *Helix Mobiliana*, Lea

3 4 *Helix hirsuta*, Say.

Numno del

W H Tuppan Sc

Helix aspersa Müll.

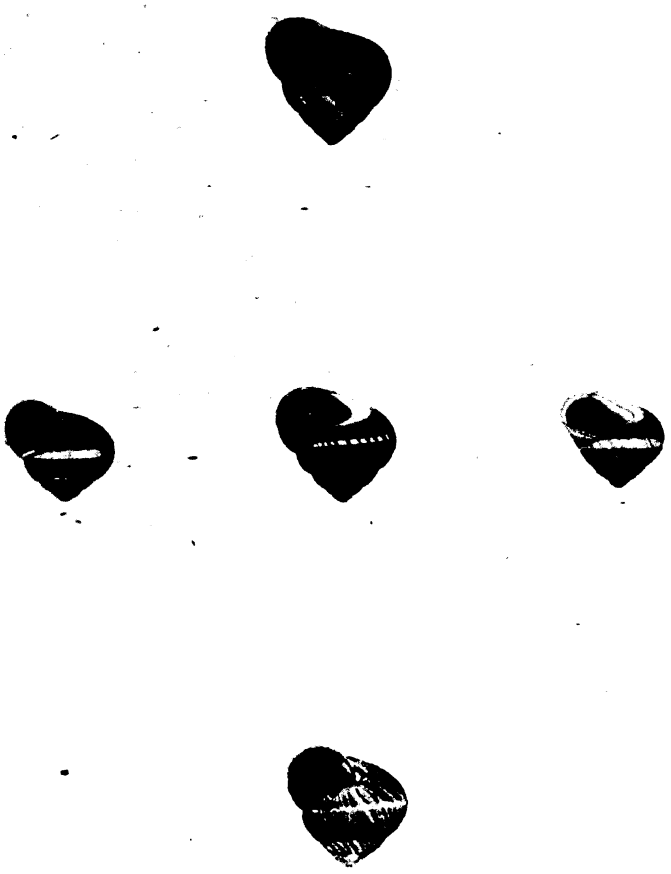


1 *Helix spinosa.* *Lea*
2 *variety elgariana.* *Lea*

PL. XLV.

1 *Helix Texasiana*,—Moricand

2 *H inflecta*,—Say 3 *H inflecta*,—Variety



Helix rhodochaita

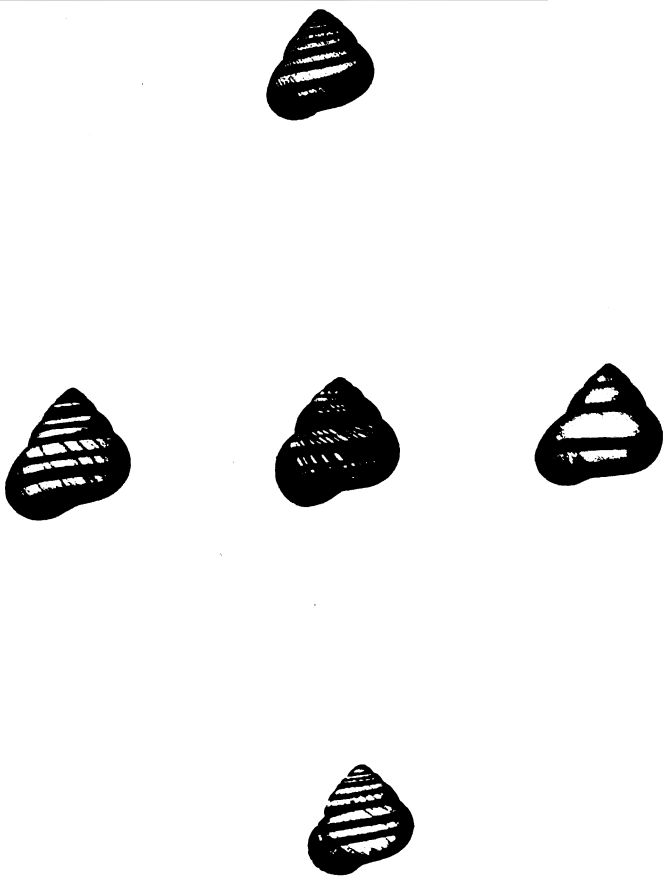
Helix rhodocheila.

Mrs. H.E. Lawton del

Mrs. Lawton

Helix [illegible]

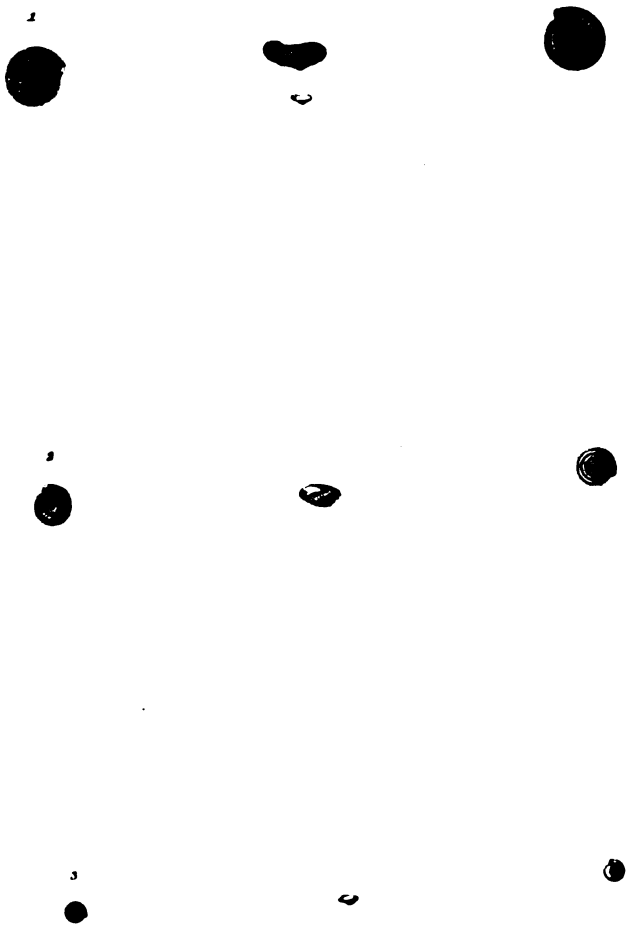
PL. XLVII.



Helix rhodocheila.

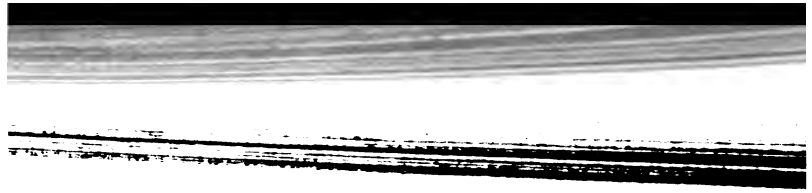
Mrs H. E. Lawson del.

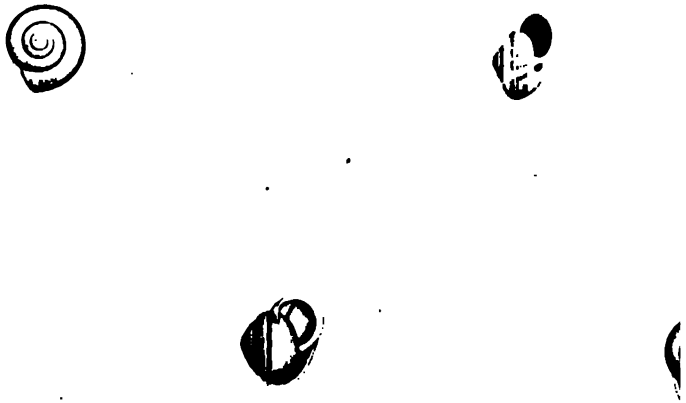
Mrs Lawson Sc.

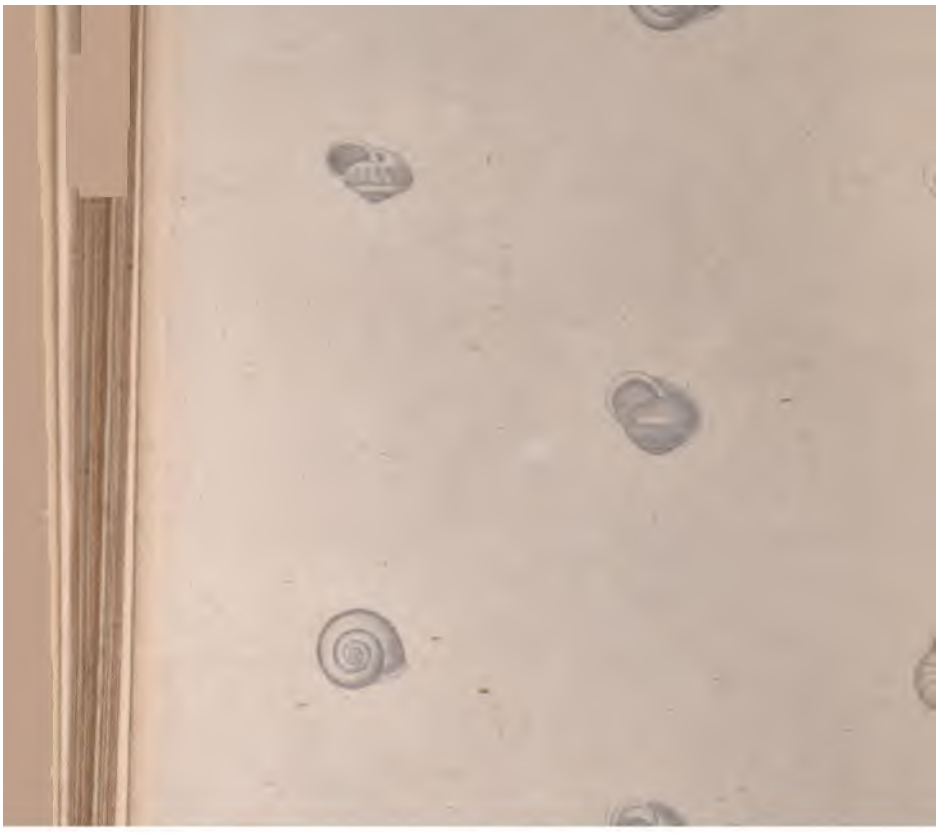


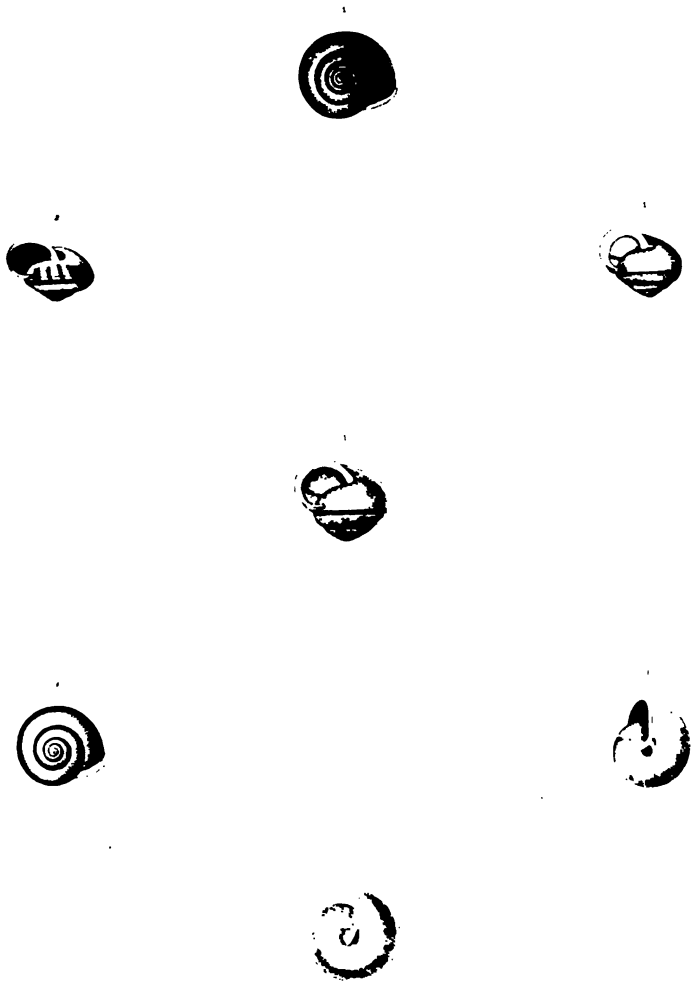
1. Helix lineata. Say. *2. Helix selenina.* Gould.

3. Helix multidentata. Binney.



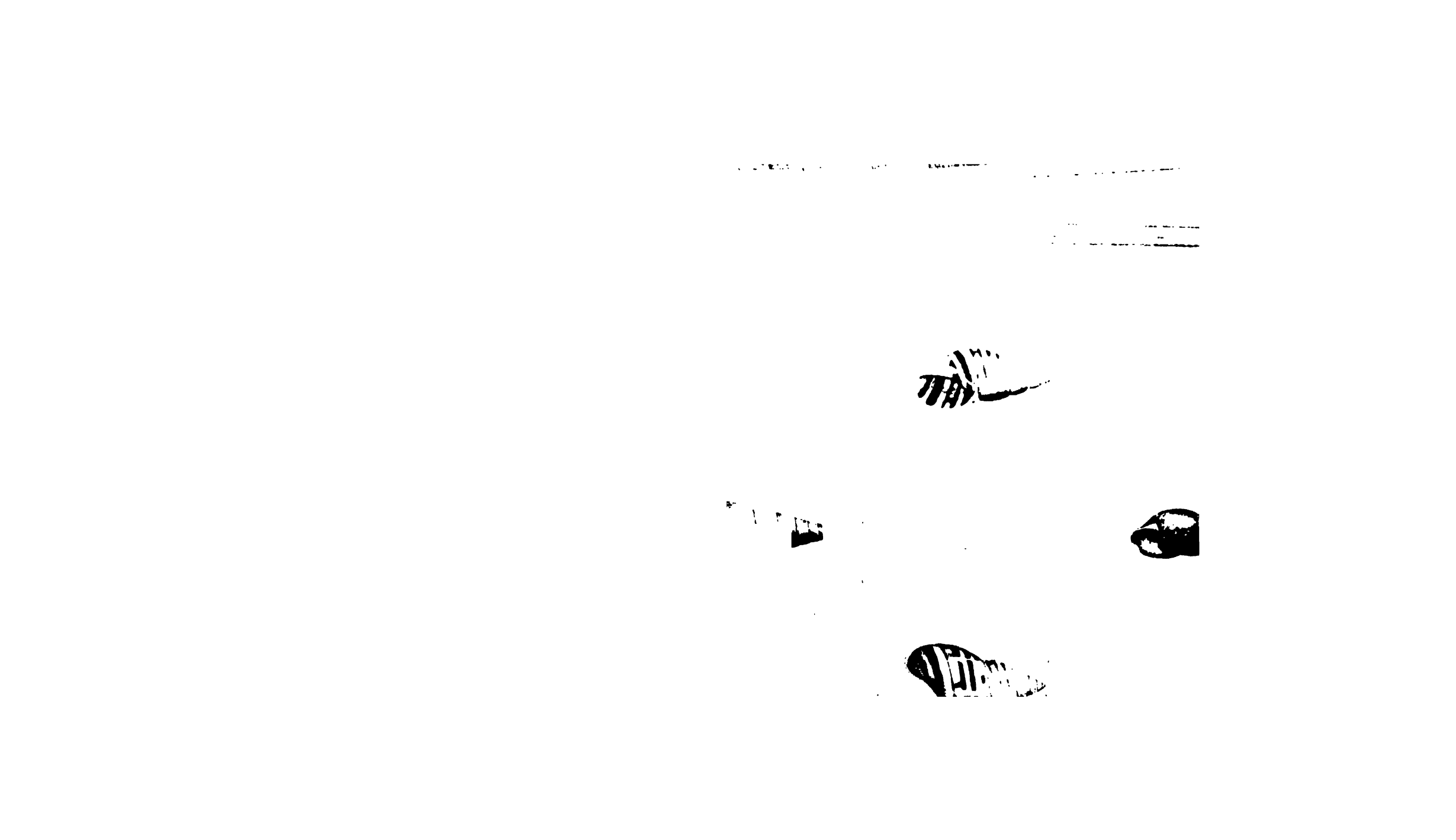


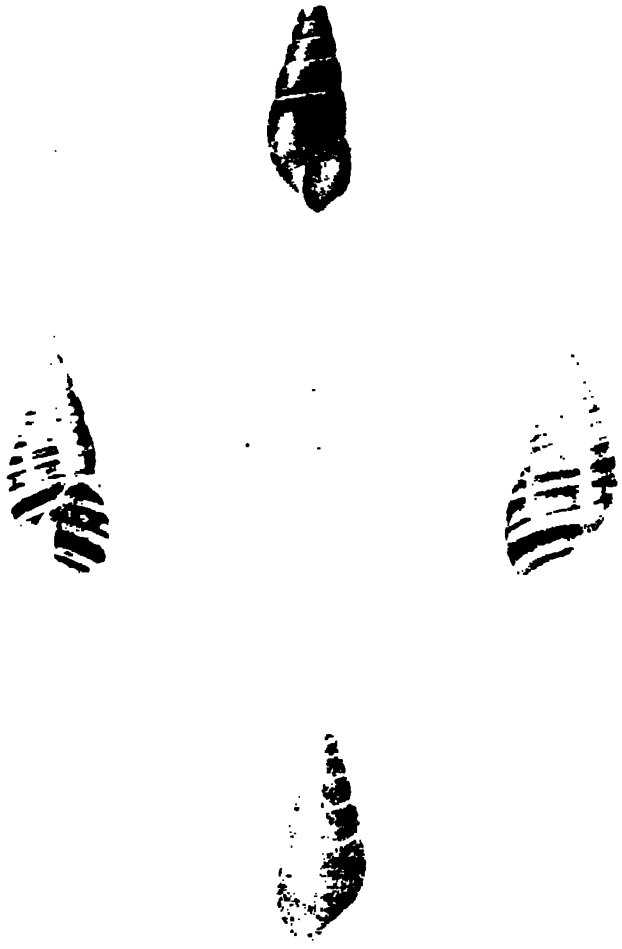


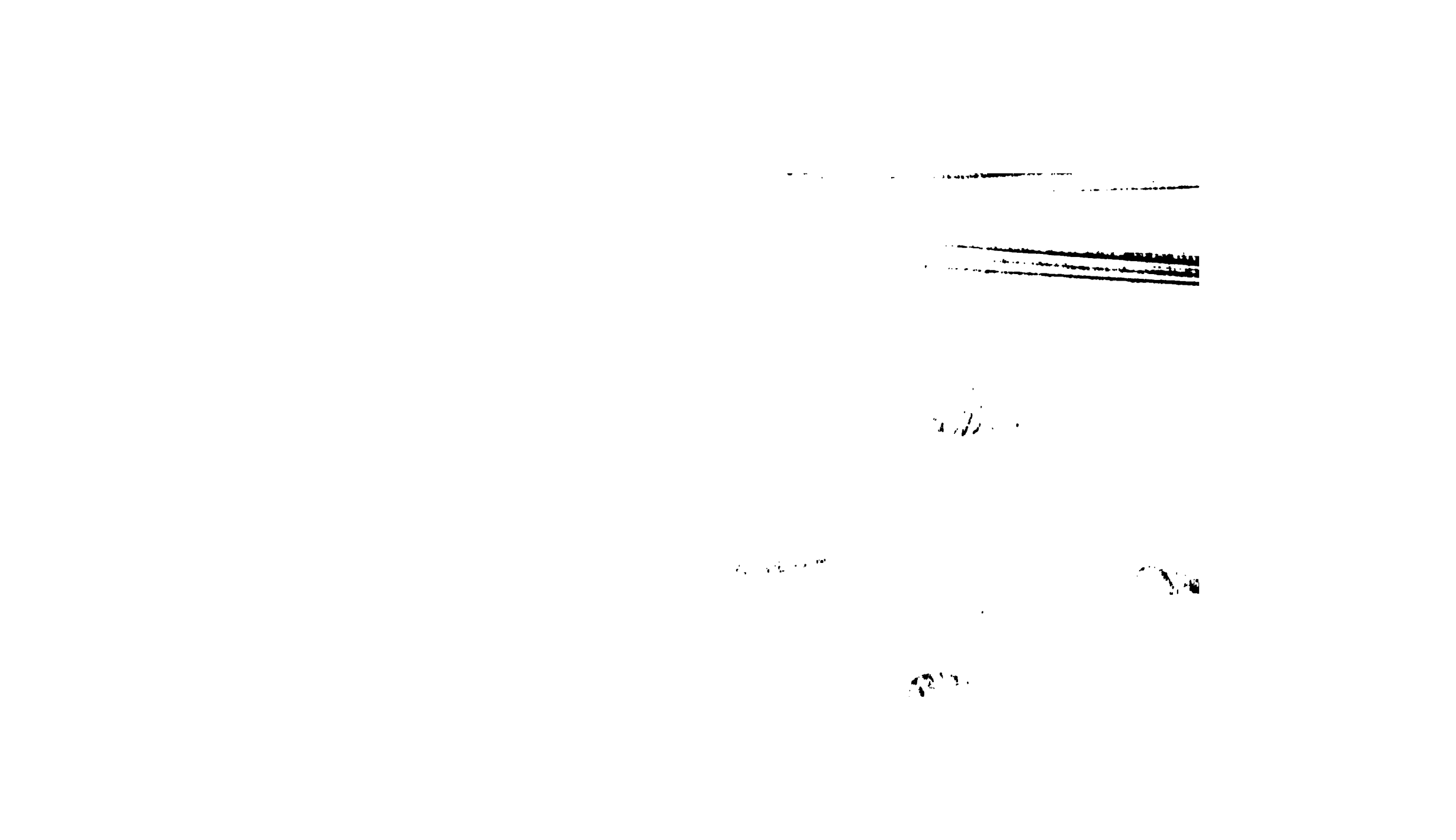


Helix Berlanderiana. Moricand

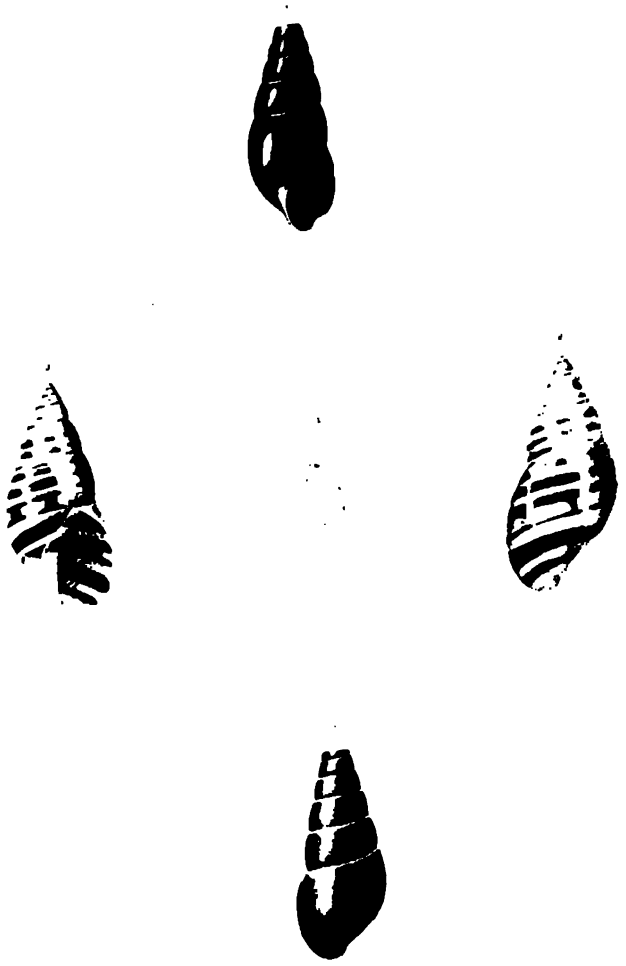
Helix albo zonata



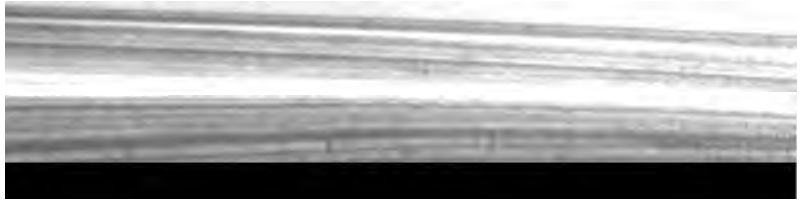




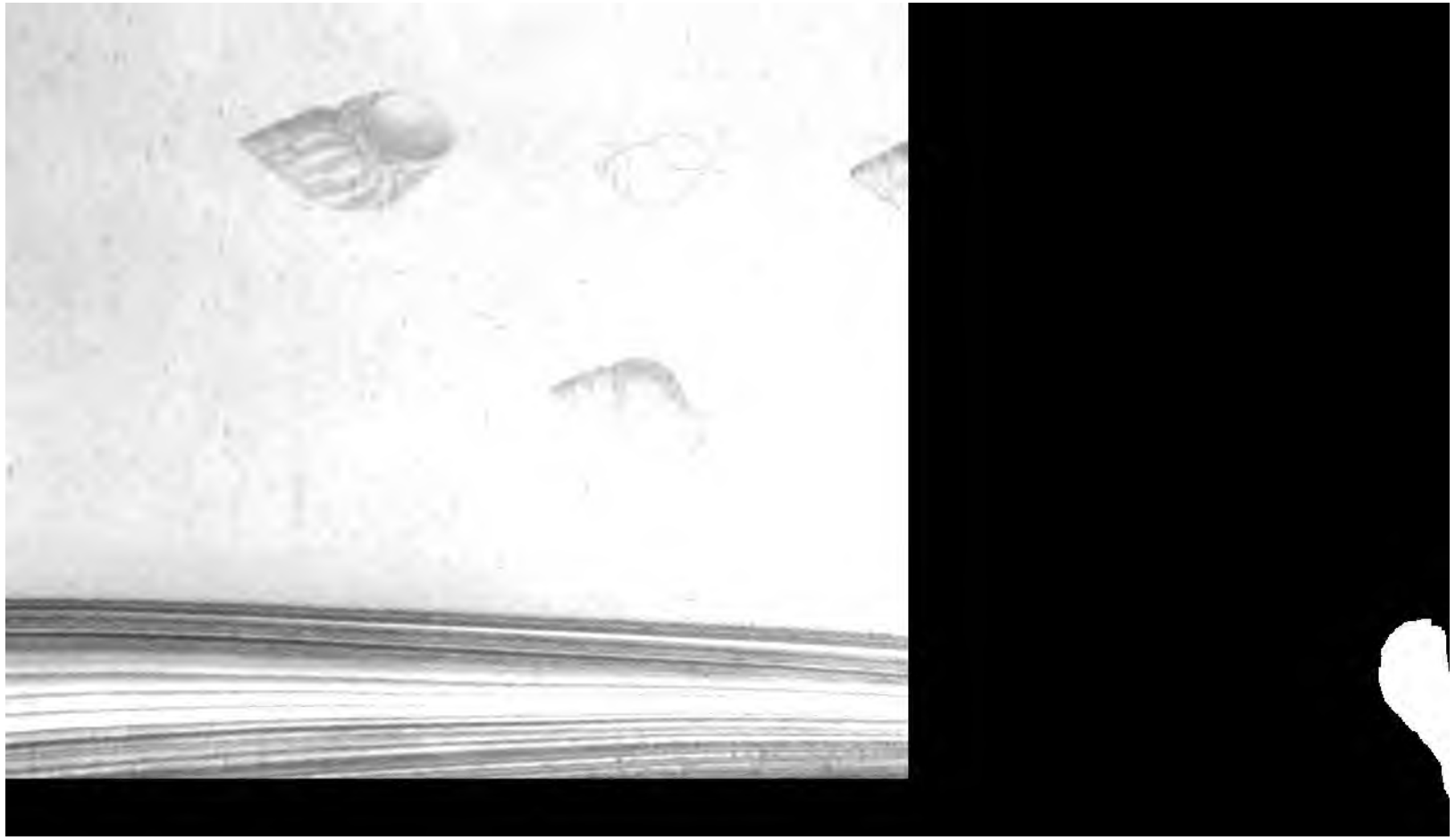
Pl. L.



1. *Bulimus decollatus*, Müll. 2. *Bulimus serperastrus*, Say.



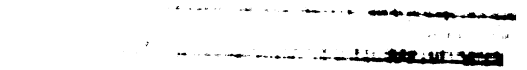
BIBLIOTHECA · BOVENIANA



Bulimus dealbatus. Say
variety alternatus. Say

W. H. Tuppen

Mrs. H. H. Lawson del.



BIBLIOTECA · BOSTELIANA

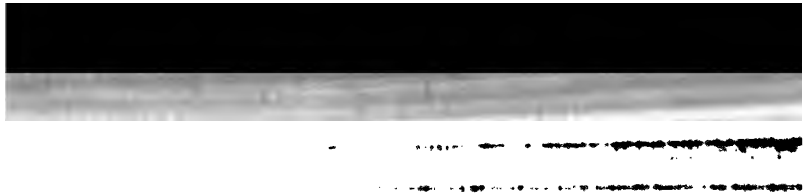
Bulimus dealbatus. Say

Miss Blain del. Max Lorenz Sc.

BIBLIOTECA BODLEIANA

Bulimus dealbatus. Say

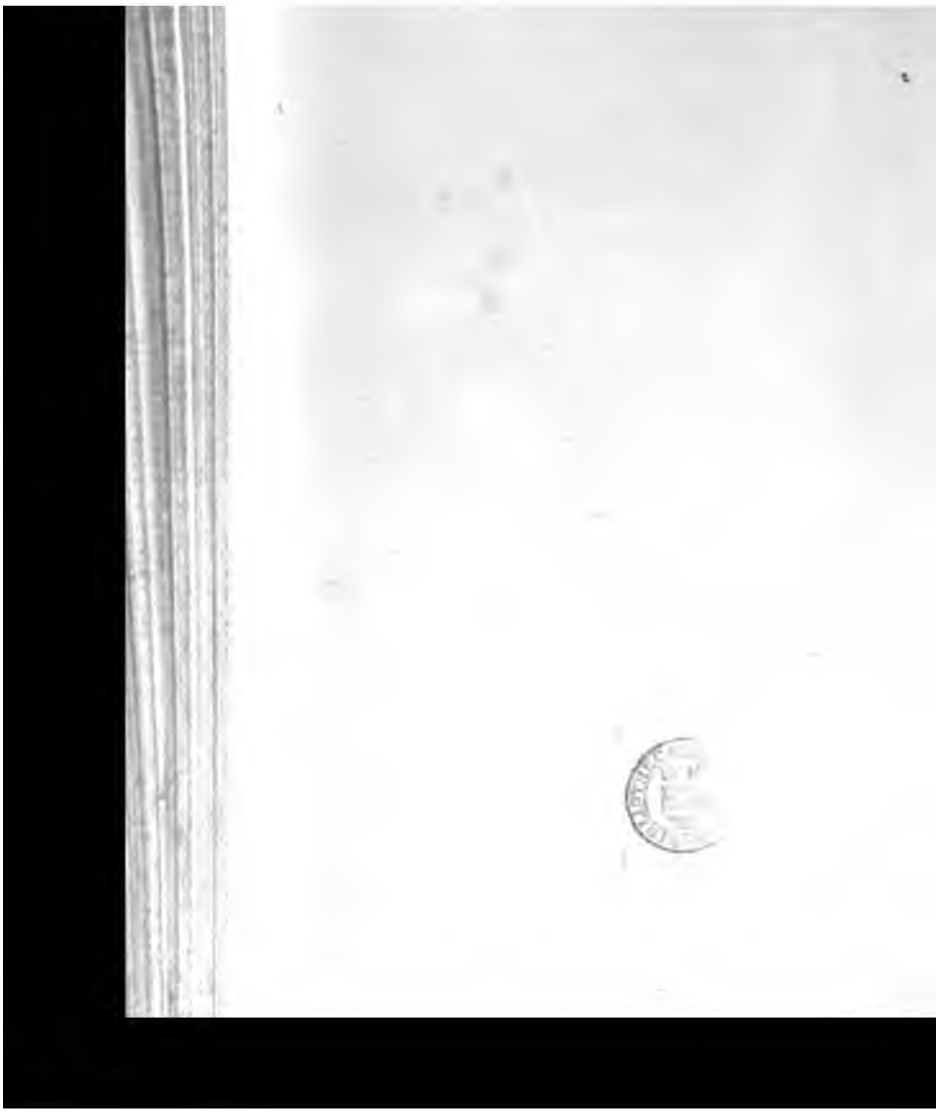
M... del. — ... Lawson Sc

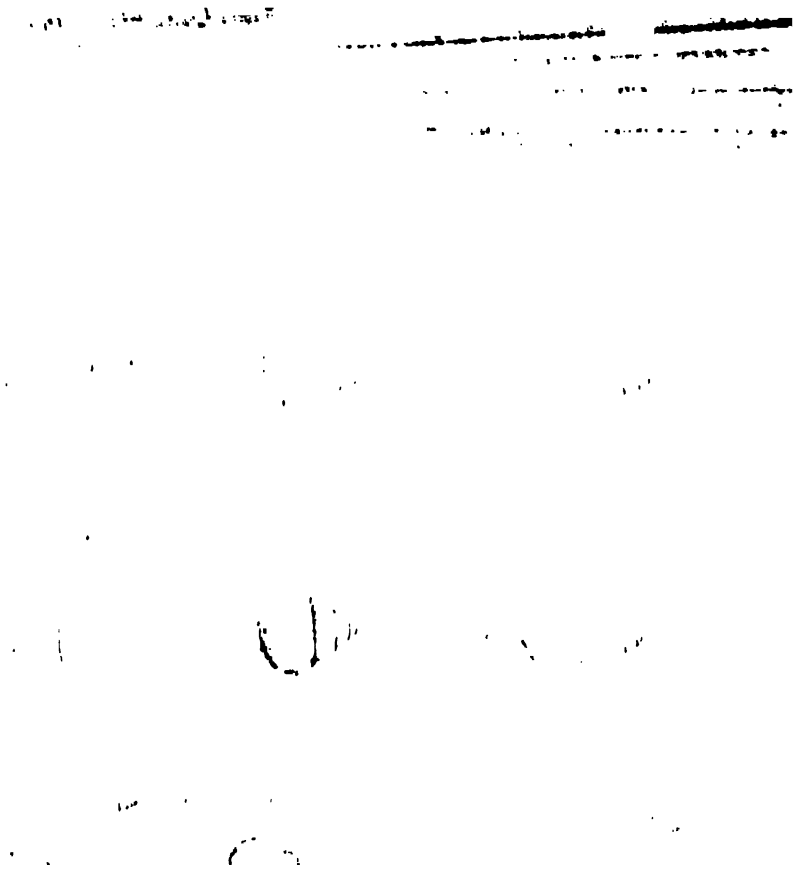


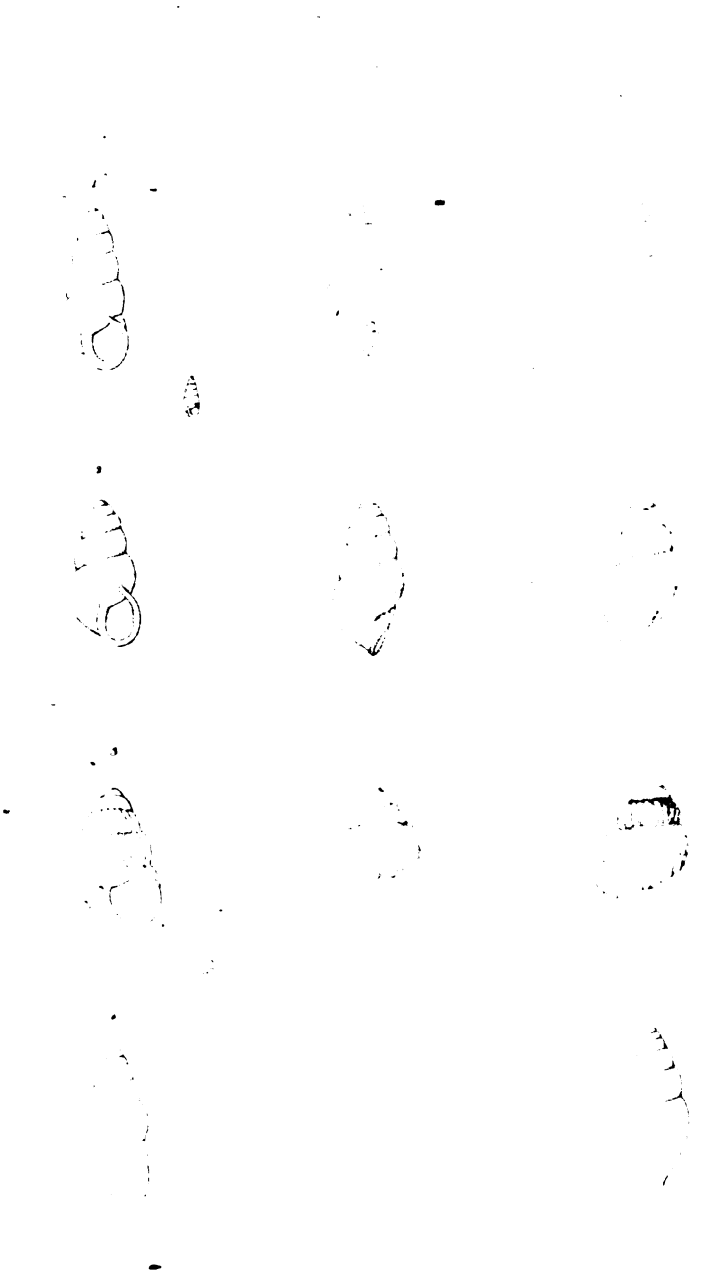
PL. LI. b.

Bulimus dealbatus, Say

[illegible] del.







Papa modica Gould

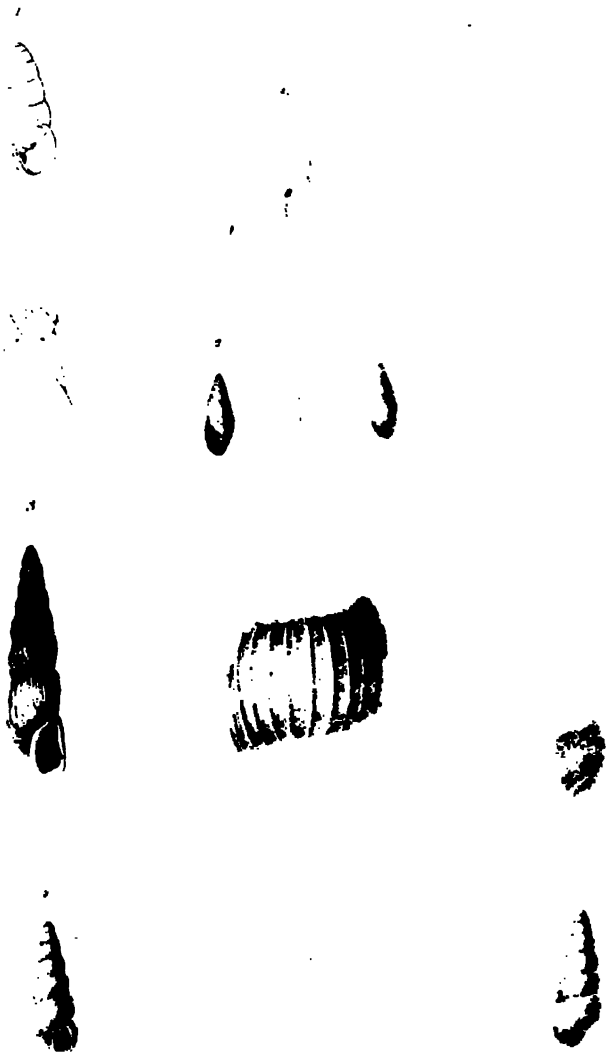
Bulimus lubricus Gould

1 *Pupa fallax*. Say. 2. *Pupa modica*. Gould.

3 *Bulimus harpa*. Say. 4. *Bulimus lubricus*. Gould.

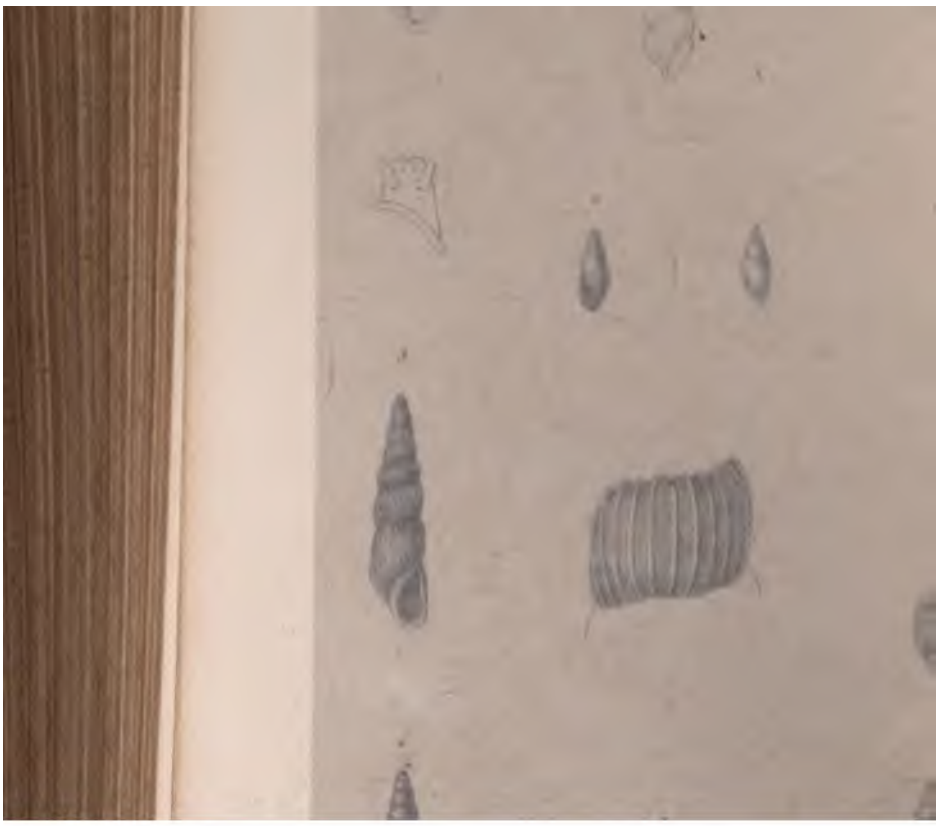
Imp. Delarue, direct.r montagne Ste Geneviève. 6.

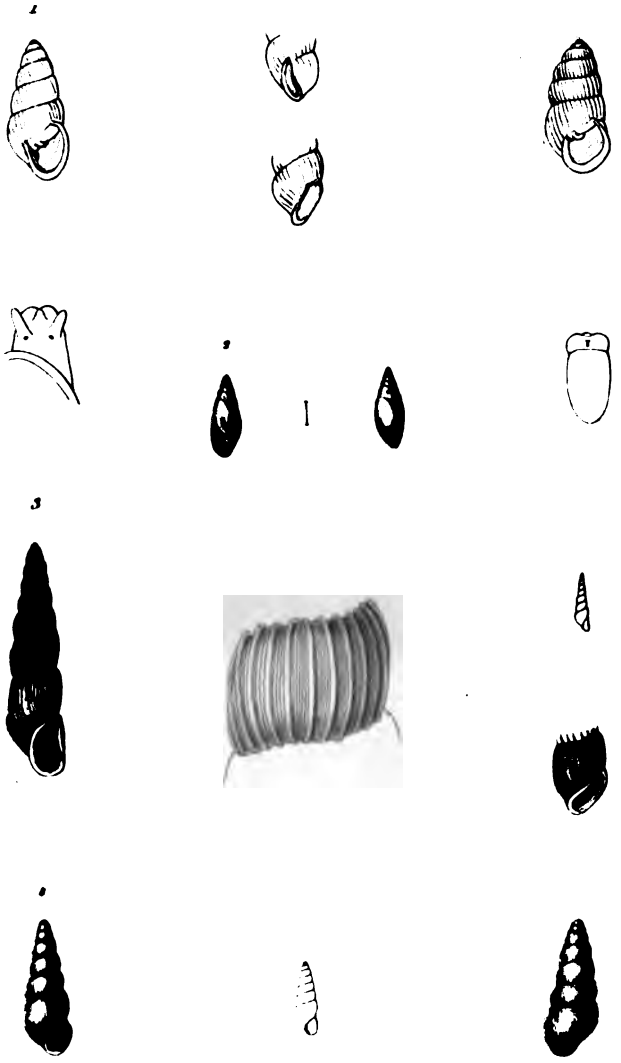
1. *Carychium exiguum*. Say.
2. *Achatina pellucida*. Pfr.
3. *Achatina gracillima* Pfr.
4. *Bulimus subula*, Pfeiffer.



[illegible] exigu[illegible] — *Achatina gracillima*

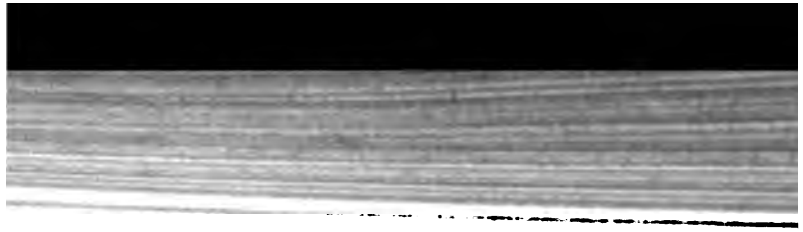
[illegible] pellucida — *Bulinus subula*



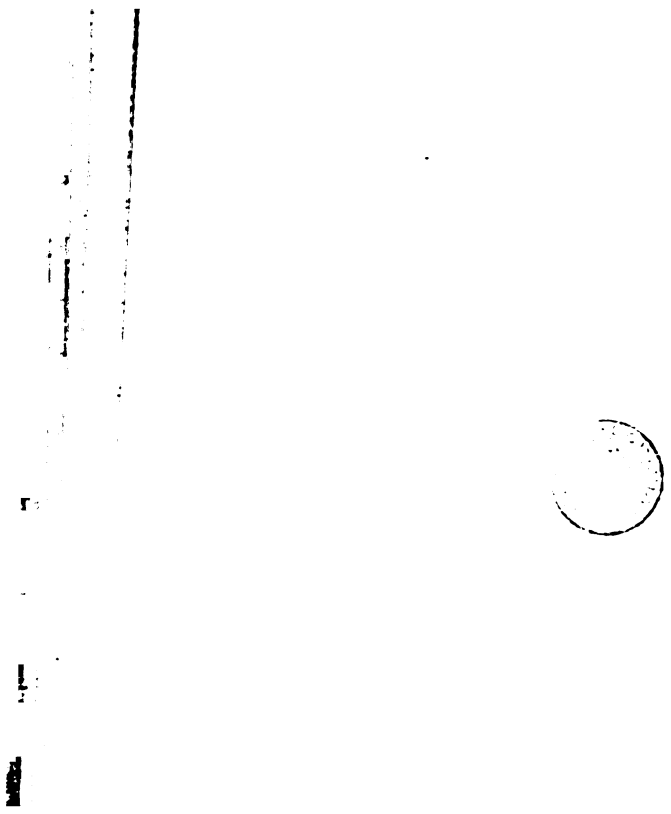


1. *Carychium exiguum*, Say.
2. *Achatina pellucida*, Pfeif.
3. *Achatina gracillima*, Pfeif.
4. *Bulinus subula*, Pfeiffer.

Vve Delarue, dir.



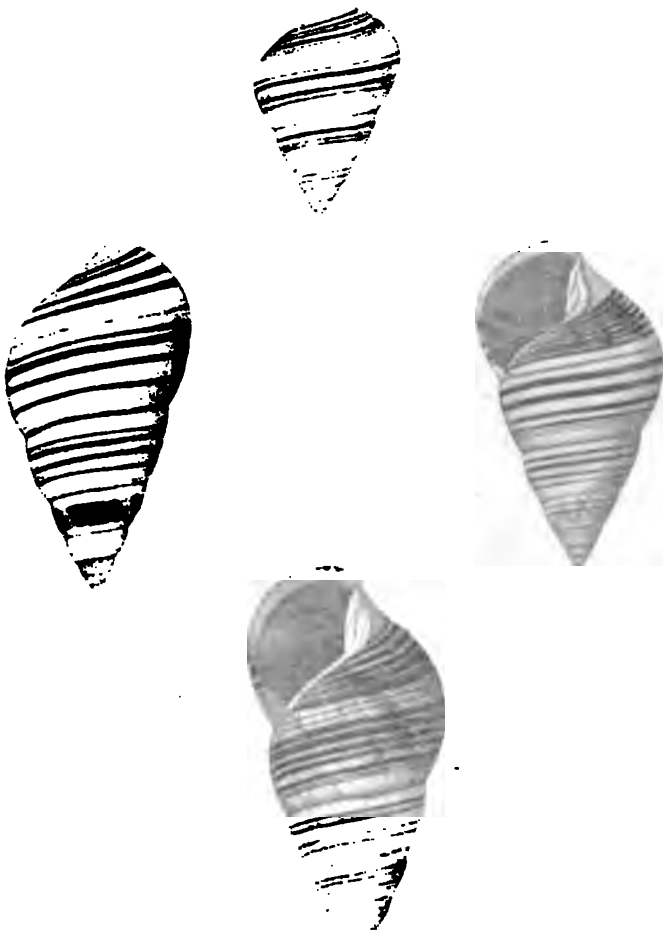
Bulimus zebra. Mawe



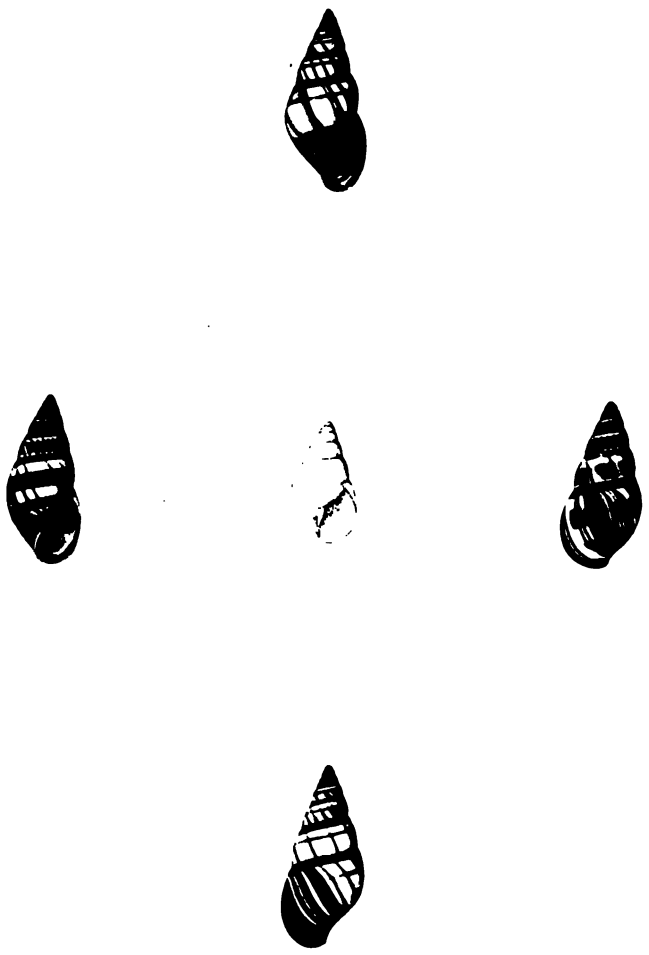
Bulimus fasciatus. Müll?
Ach. solida Say

PL. LVI.

Bulimus fasciatus, Müll.

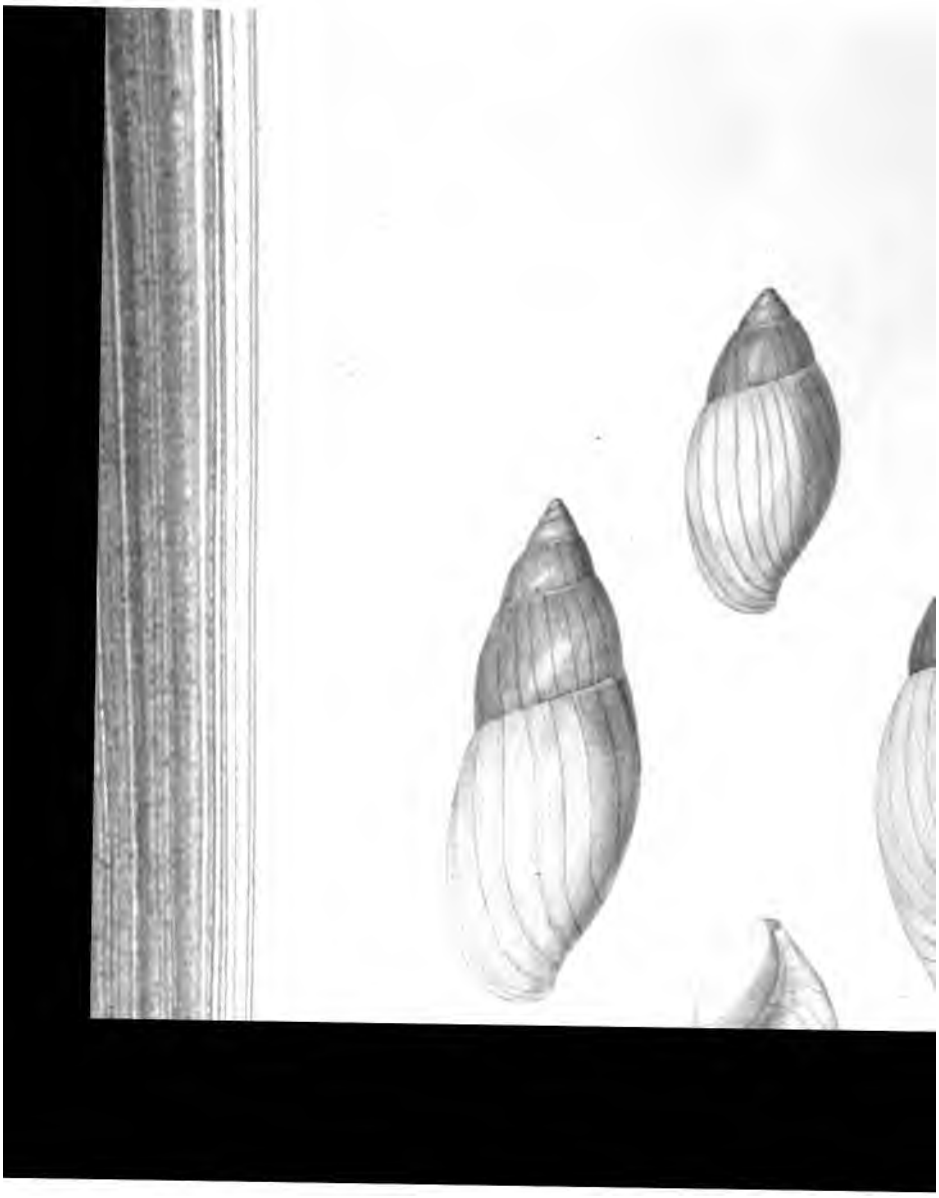


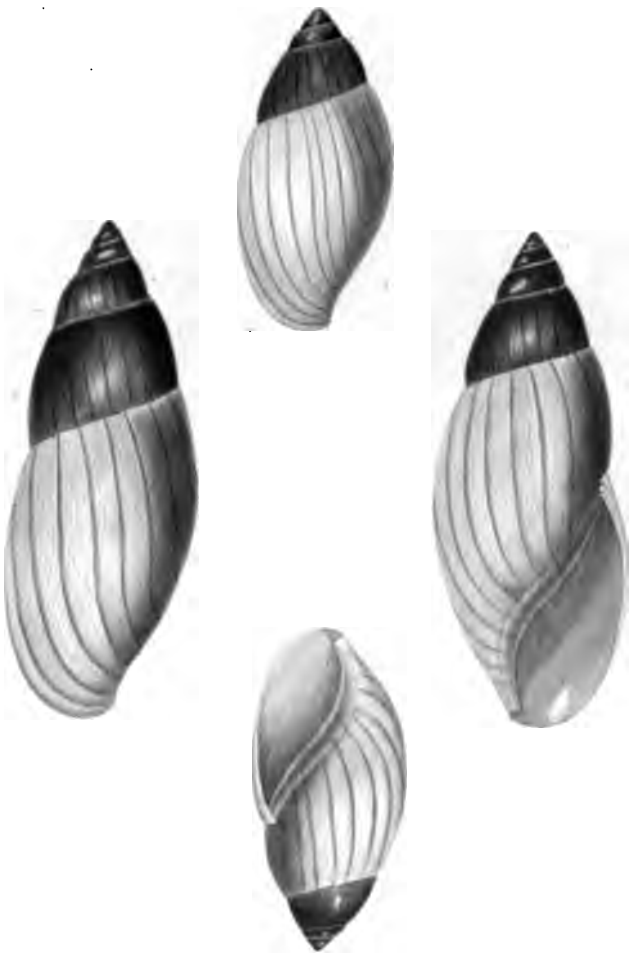
Bulimus fasciatus, Mull



Bulimus virgulatus. Fer

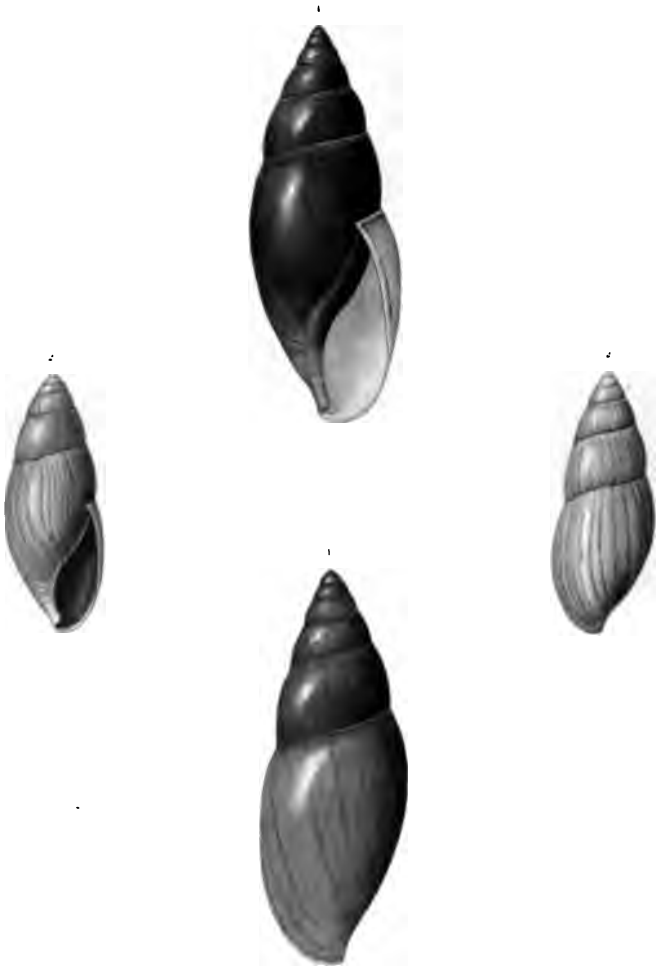
Glandina truncata, Say.





Glandina truncata. Say

Miss H. F. Lawson del. W. H. Tappan Sc.



Clausilia truncata Nob.

1. *Glandina Vanuxemensis*, Lea.
(2. *G. truncata*, Var.)

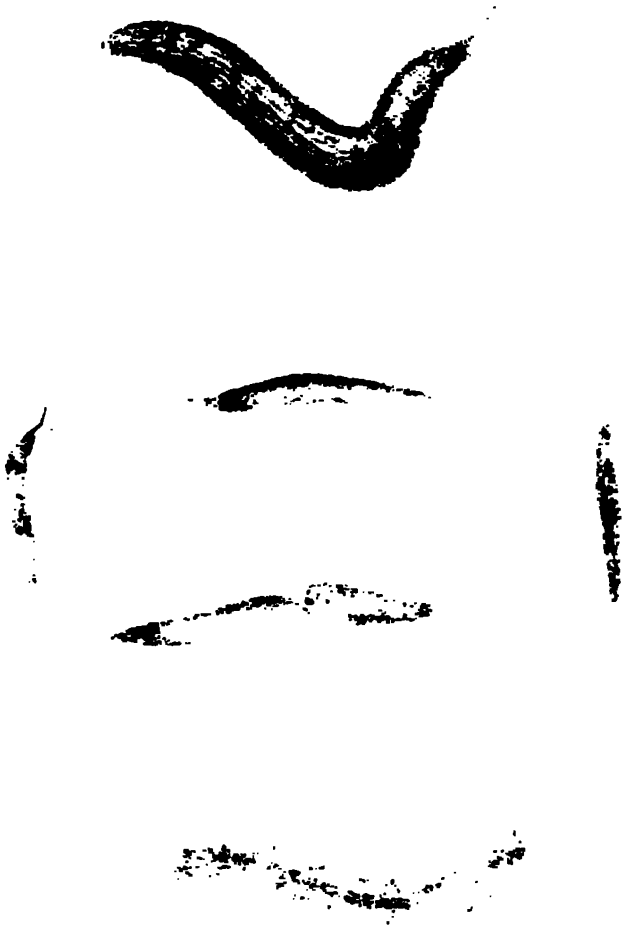
Glandina bullata, Gould.

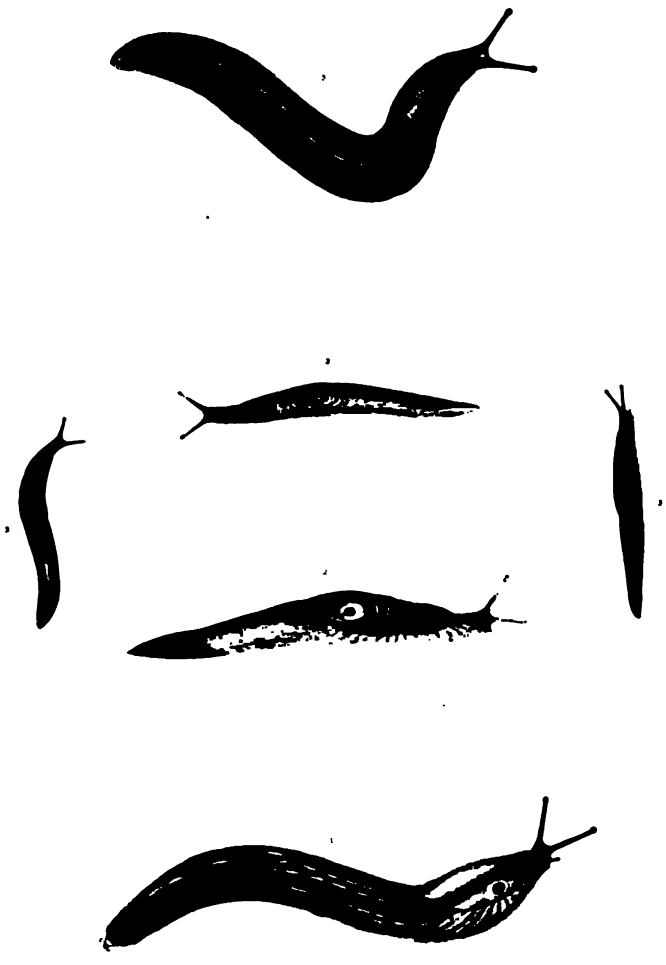
Vve Delarue del.

Glandina bullata, Gould

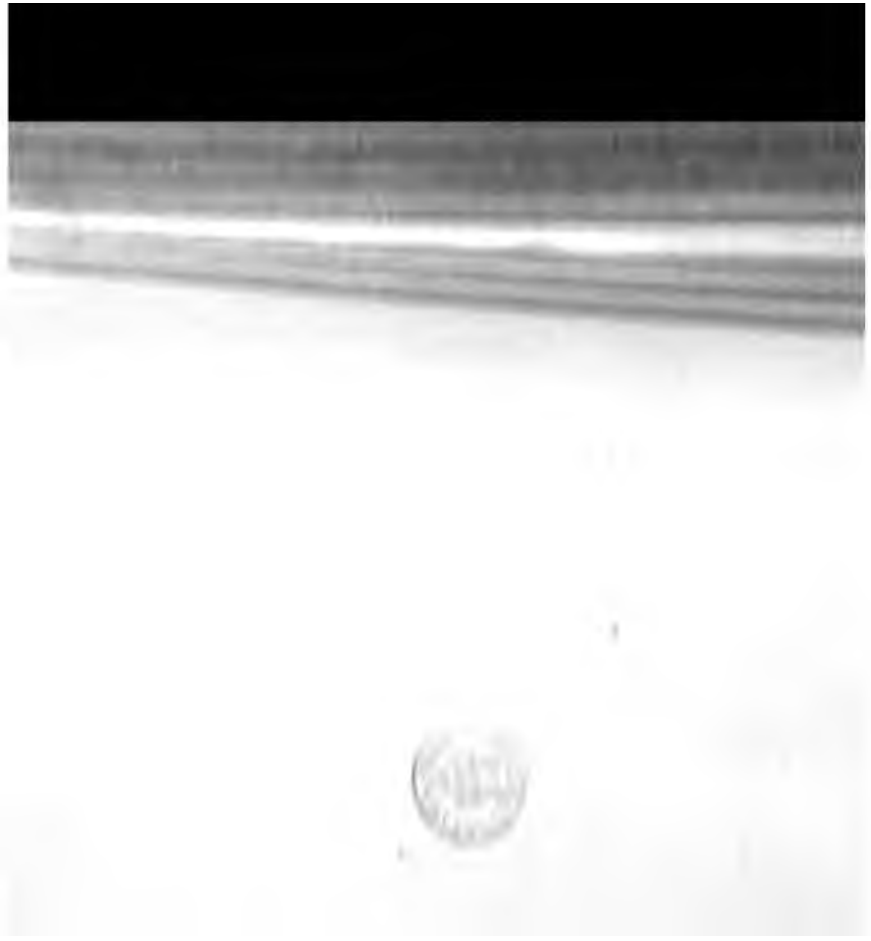
Vve Delarue dir.

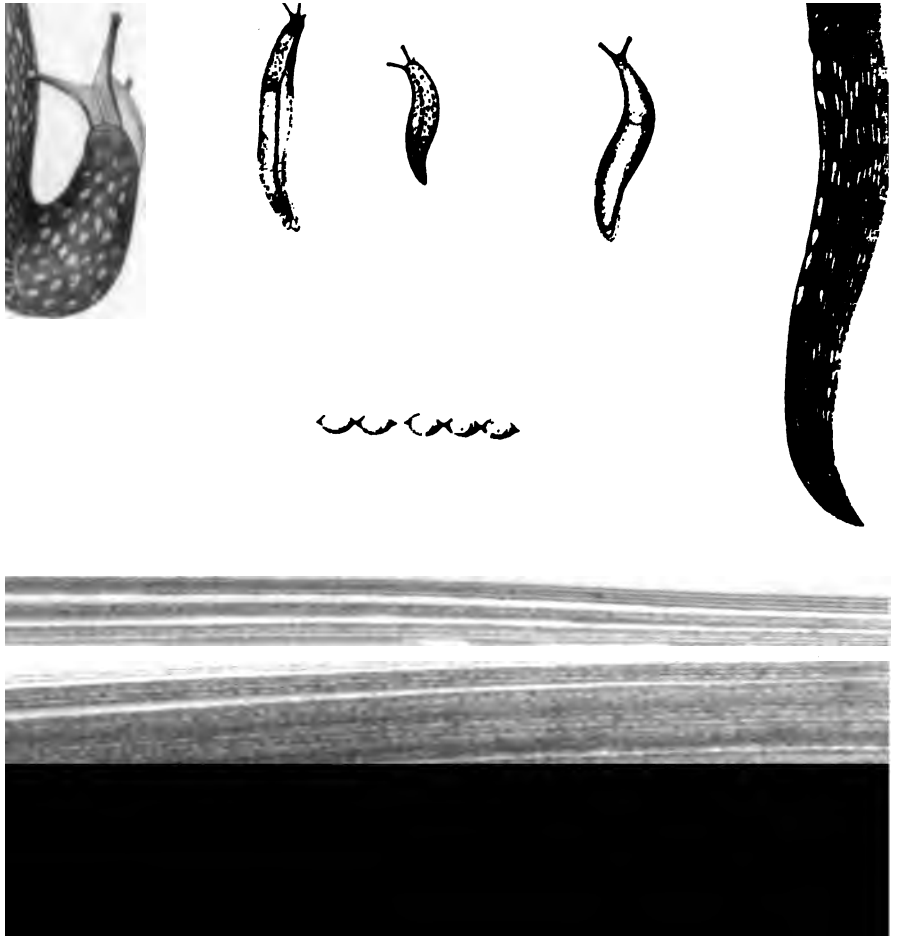
Tebennophorus Caroliniensis Hesc. *surface of same*
Tebennophorus dorsalis

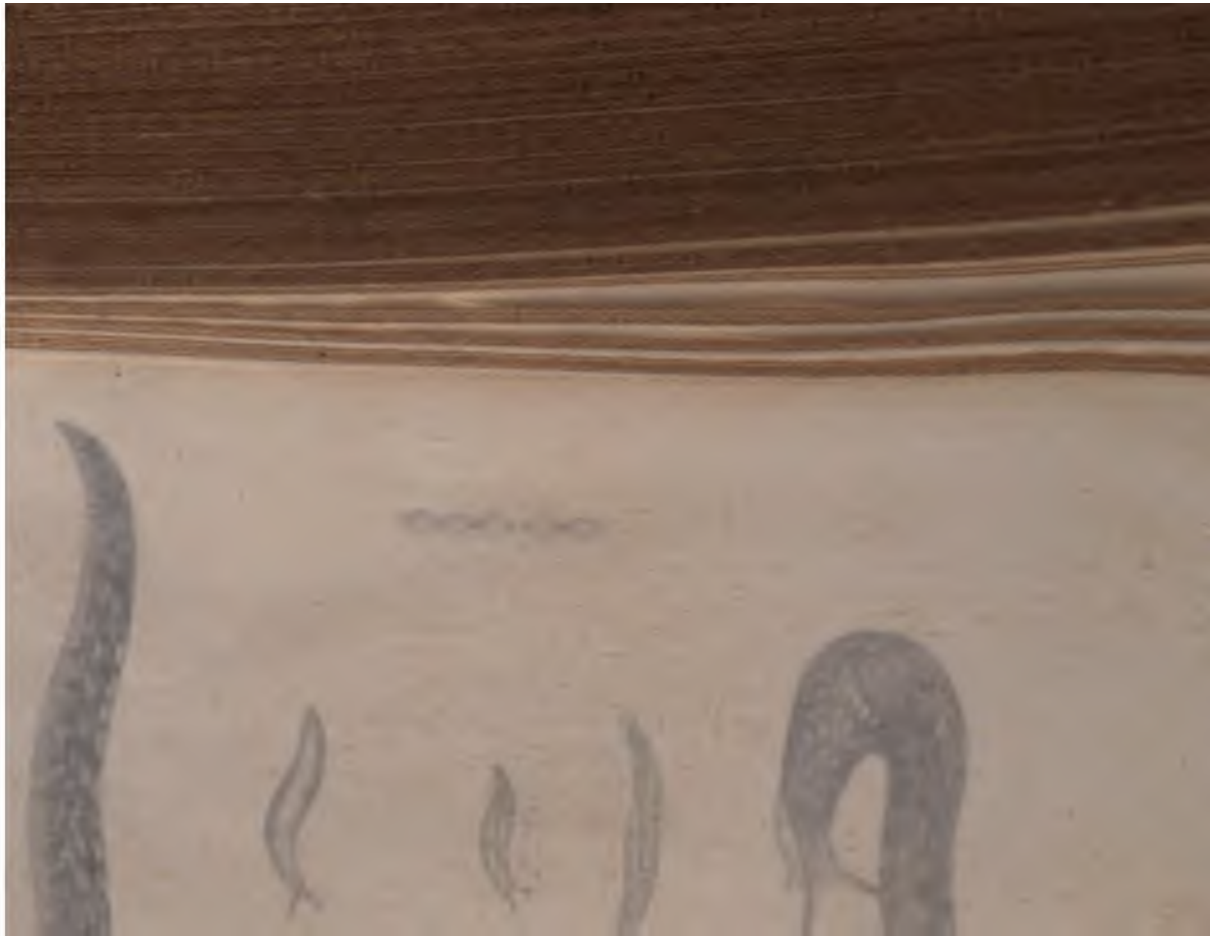


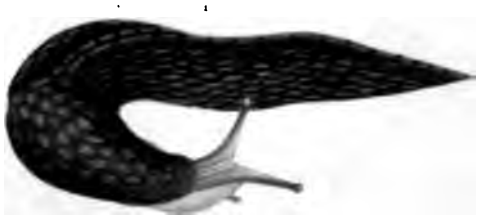


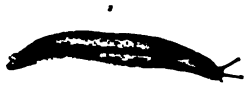
Arion hortensis. Fr *Limax agrestis.* Mull
Limax campestris





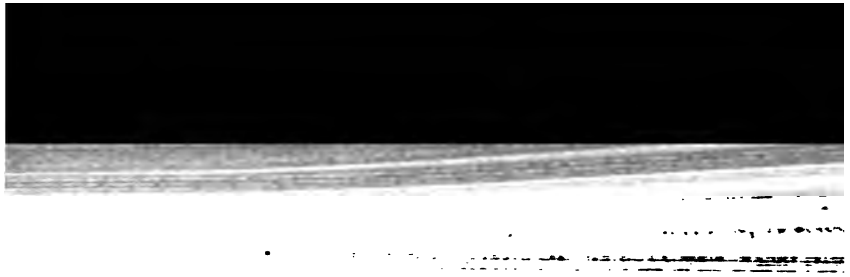


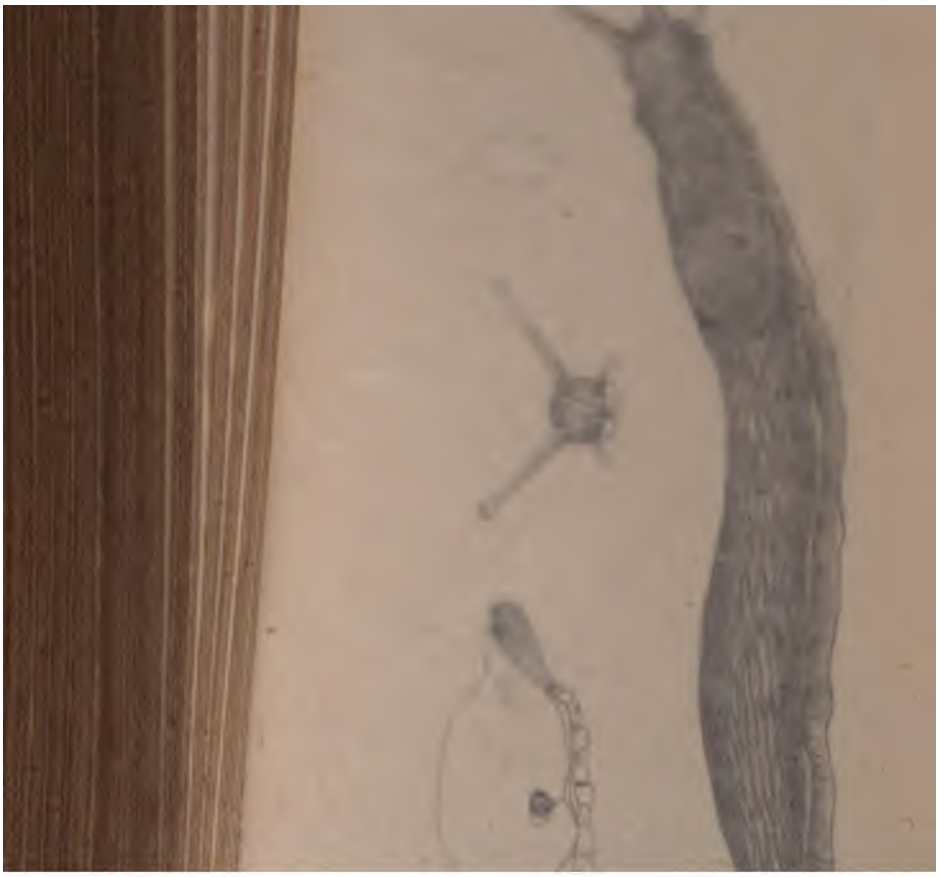


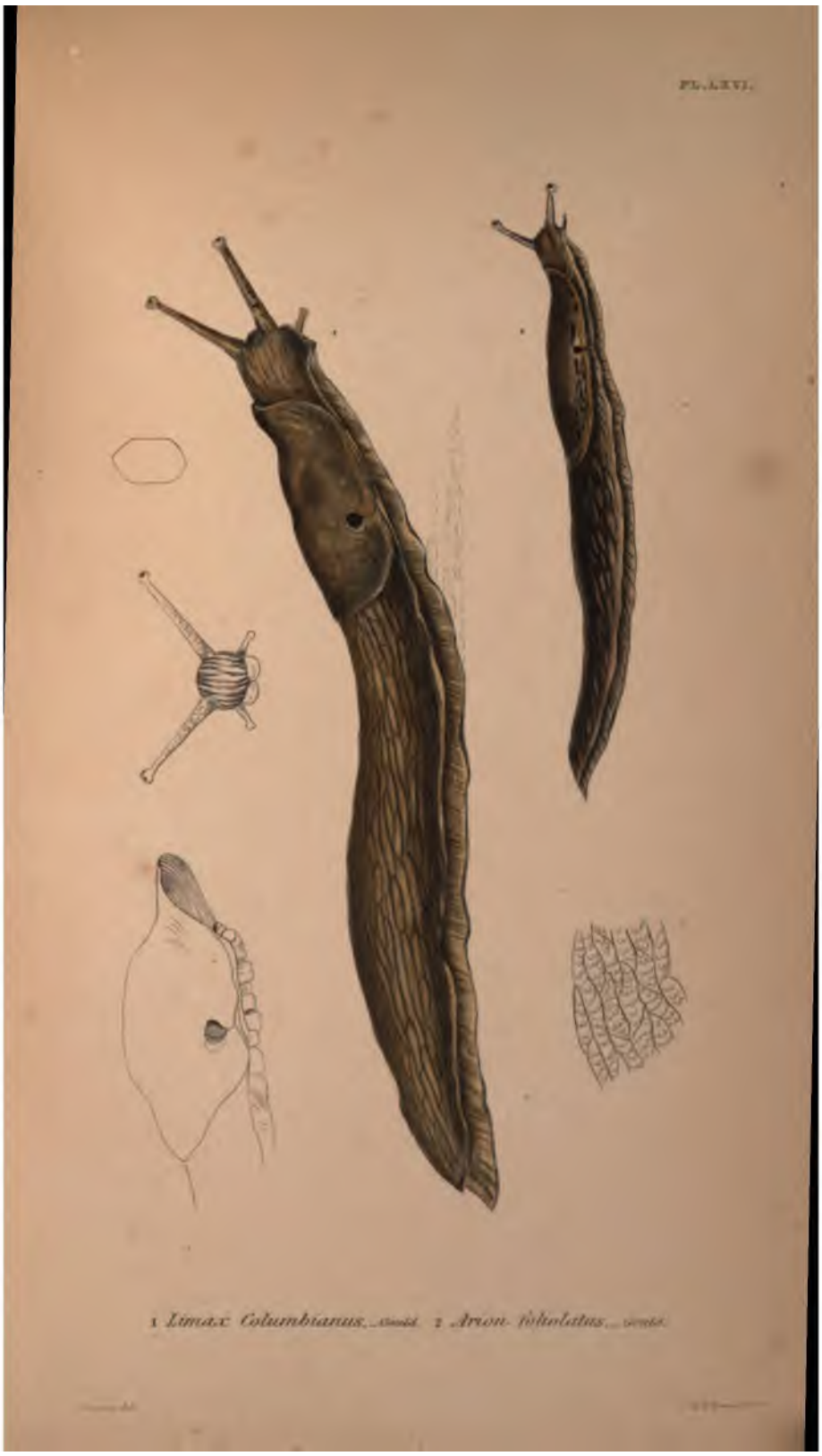


1. *Limax variegatus.* Drap. 2. *Arion hortensis.* Fer.

W. H. Fitton, M.

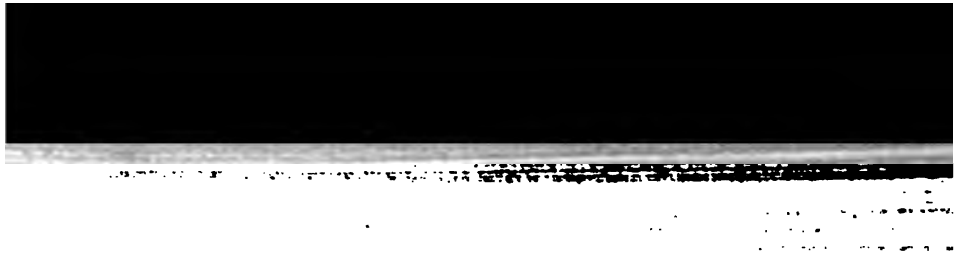


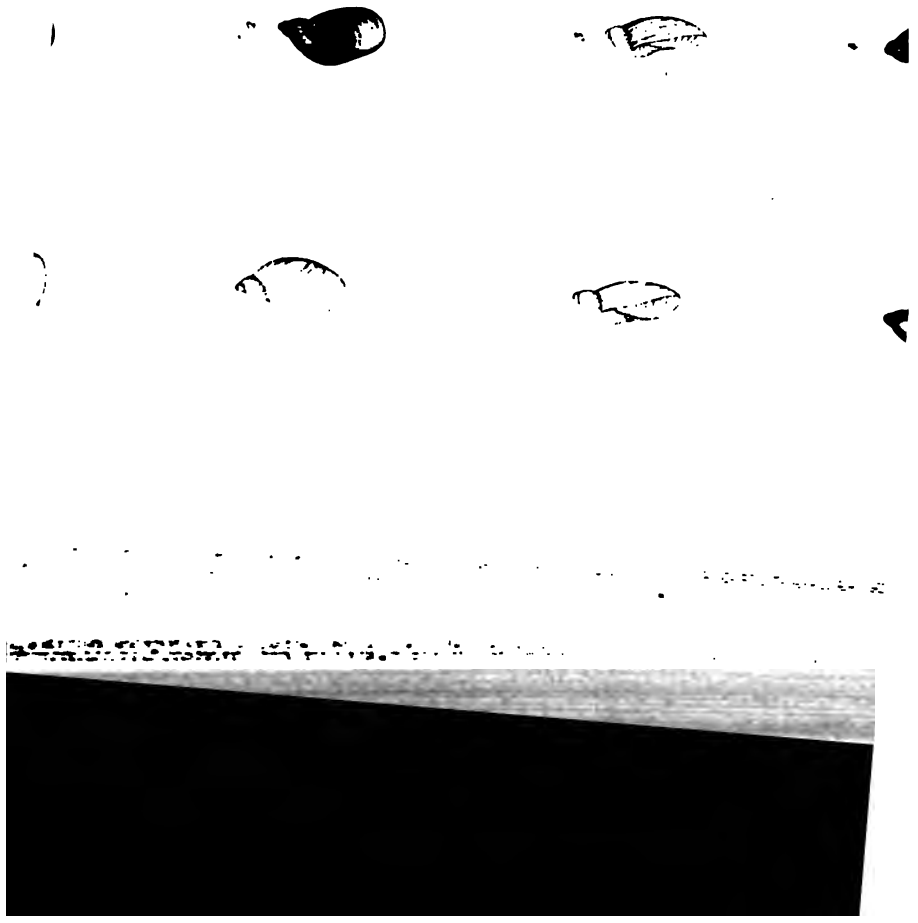




1 *Limax Columbianus*, dorsal. 2 *Arion fuliolatus*, dorsal.

Vaginulus floridanus



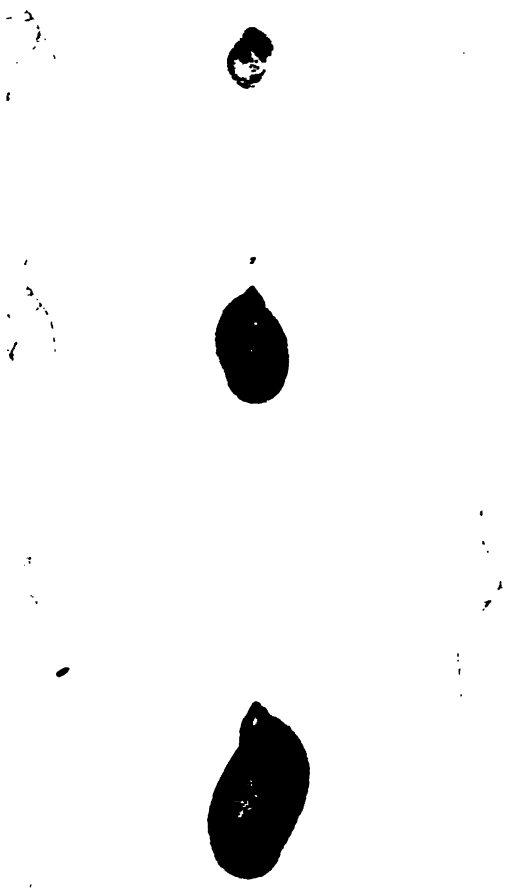


PL. LXVII A

1 *Vitrina pellucida.* 2 *Succinea concordialis.*
3 *Succinea ovalis.* 4 *Succinea nuttaliana.*

Succinea campestris, Say. 1. Succinea Totteniana, Lea.

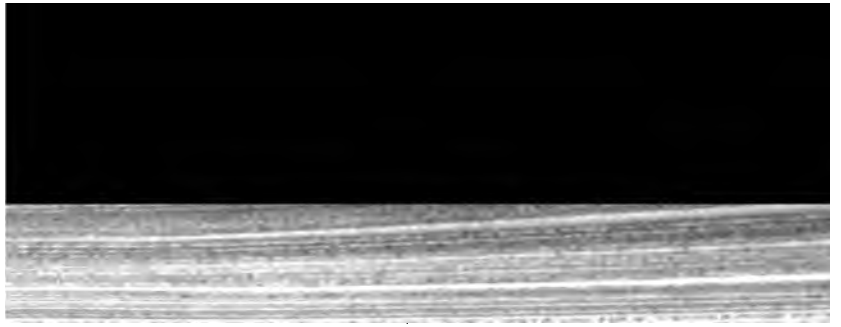
2. Succinea obliqua, Say.

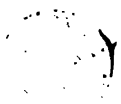


Wallis del.

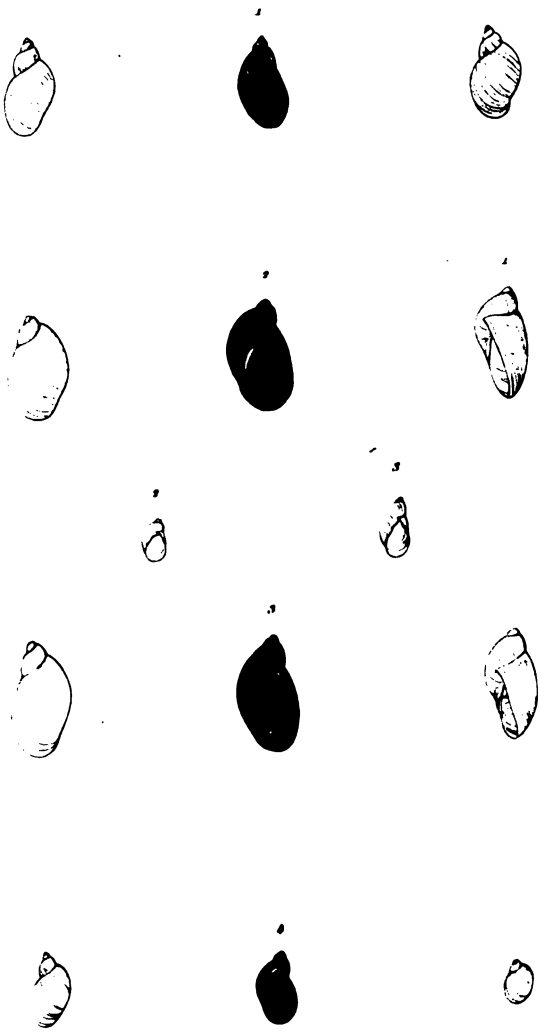
1. *Succinea campestris* Say. 2. *Succinea Totteniana*, Lea.
3. *Succinea obliqua*, Say.

Vve Delarue, dir.

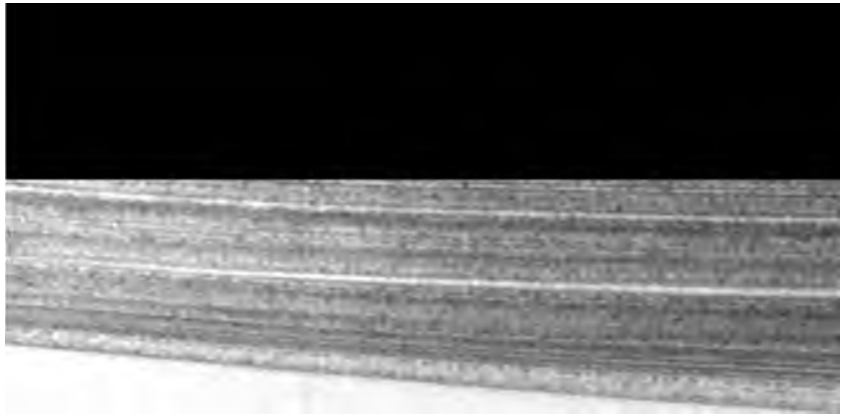


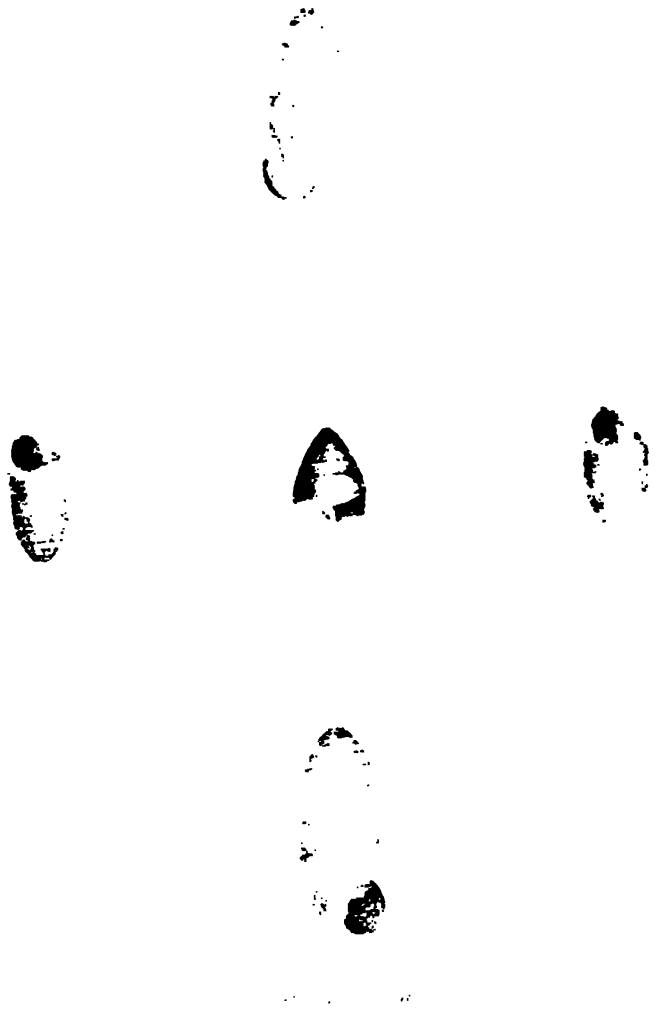


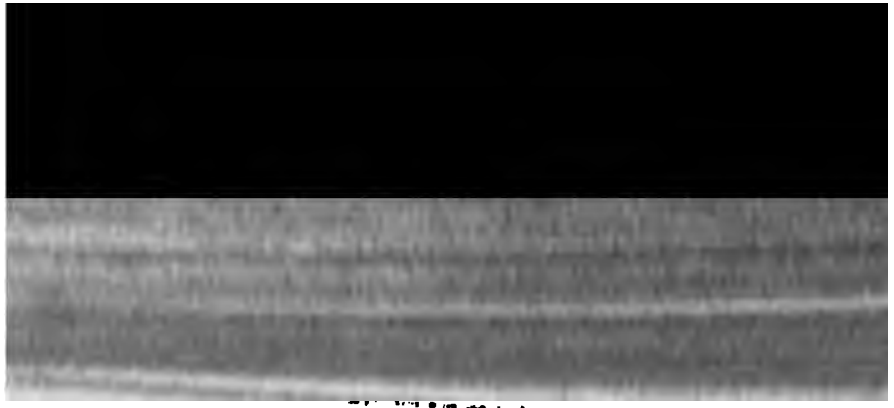
1. *Succinea luteola* Gould. 3. *Succinea oregonensis*
2. *Succinea aurea*, Lea 4. *Succinea avara*, Say



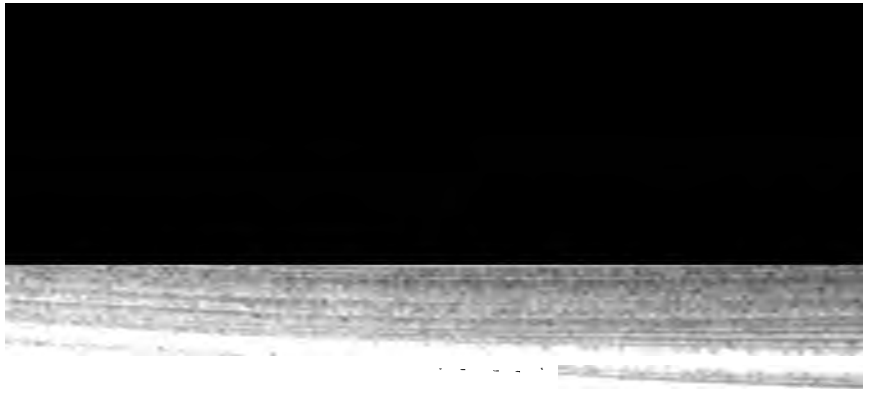
1 *Succinea luteola* Gould
2 *Succinea aurea*, Lea
3 *Succinea oregonensis*, Lea.
4 *Succinea avara*, Say.



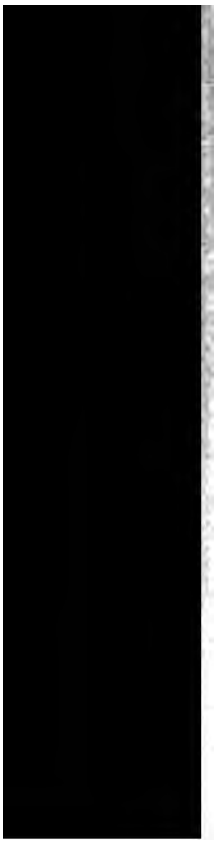


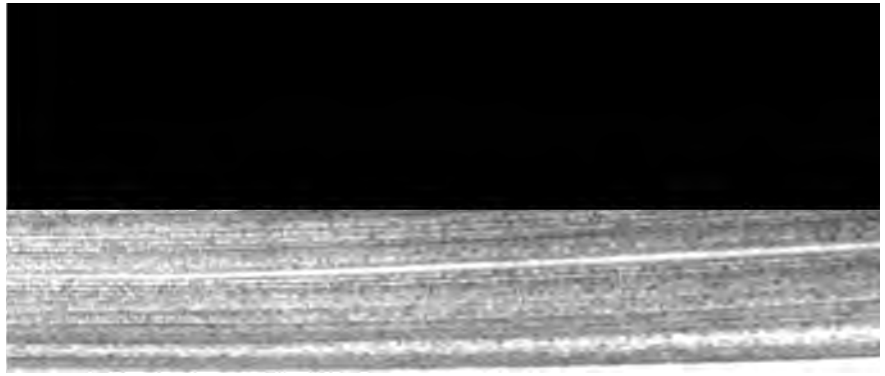


Pupa incana



1 *Cylindrella pontifica.*—*Gould.* 2 *C. lactaria.*—*Gould.*
3 *C. jejuna.*—*Gould.*

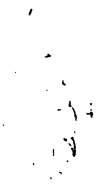


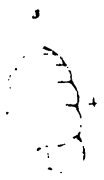


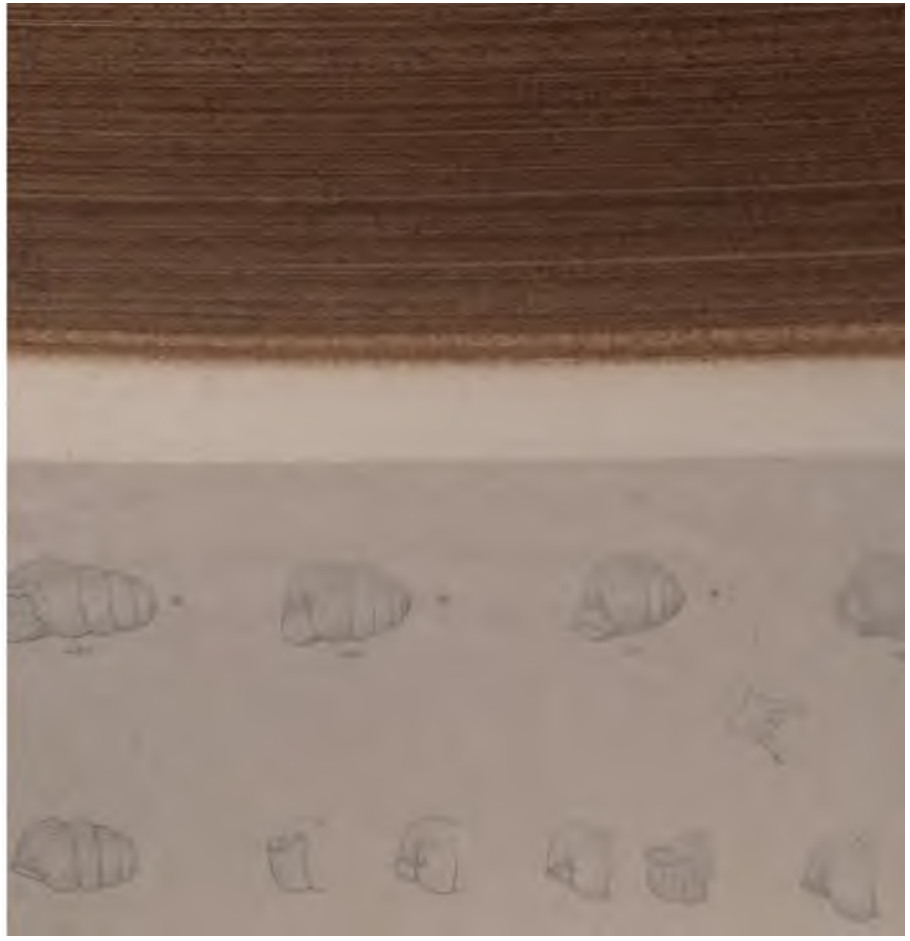
1 *Pupa rupicola*, Say. 3 *Pupa badia*, Adams.

2 *Pupa contracta*, Say. 4 *Pupa armigera*, Say.

Imp. [illegible] Montagne S.te Geneviève 6







1. *Pupa pentodon*, Say   2. *Pupa variolosa*, Gould.
3. *Pupa simplex*, Gould.   4. *Pupa corticaria*, Say

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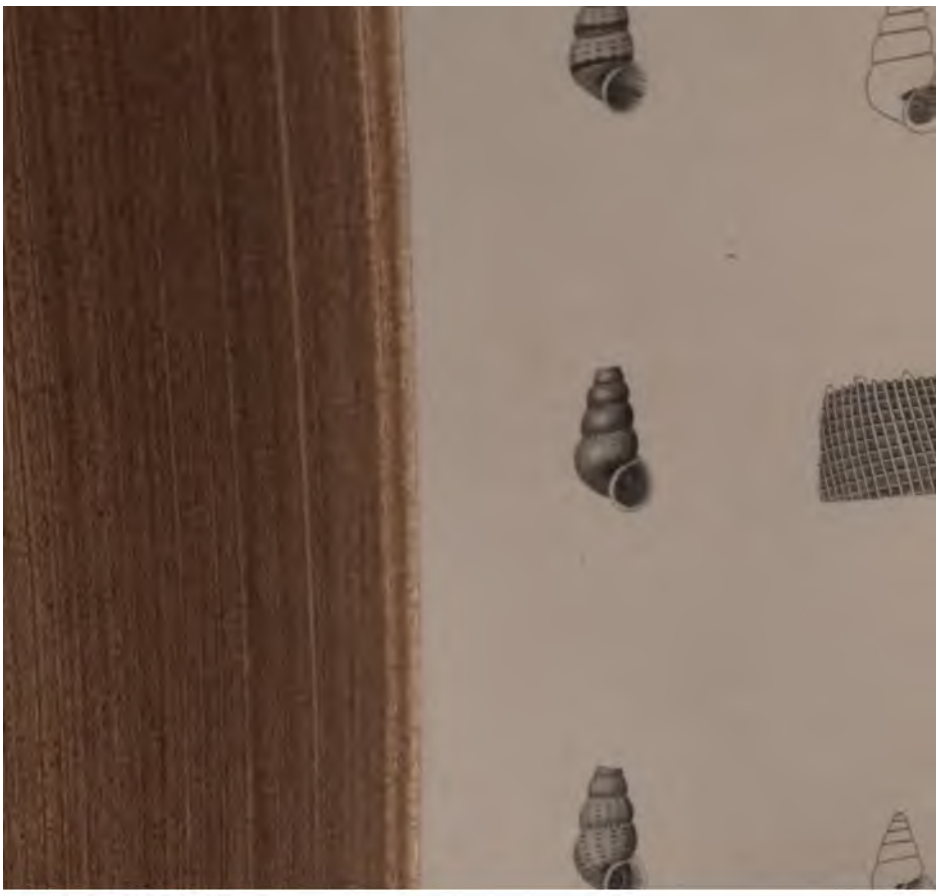
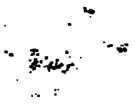
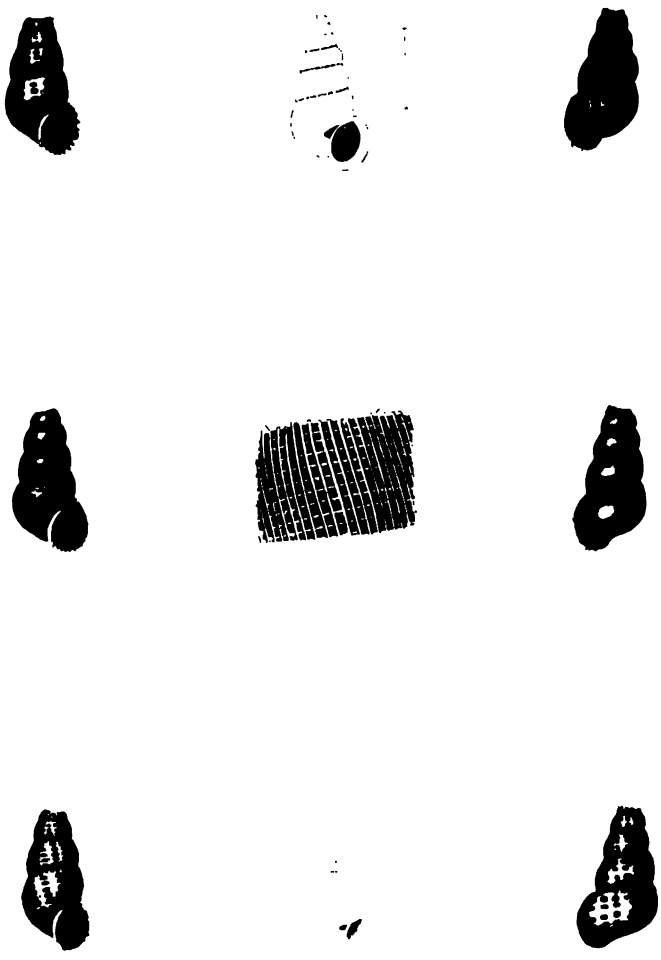
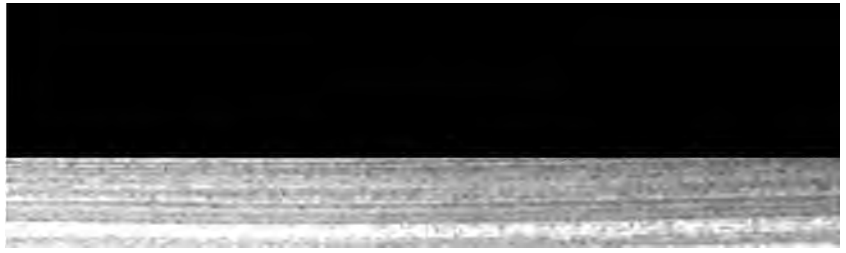
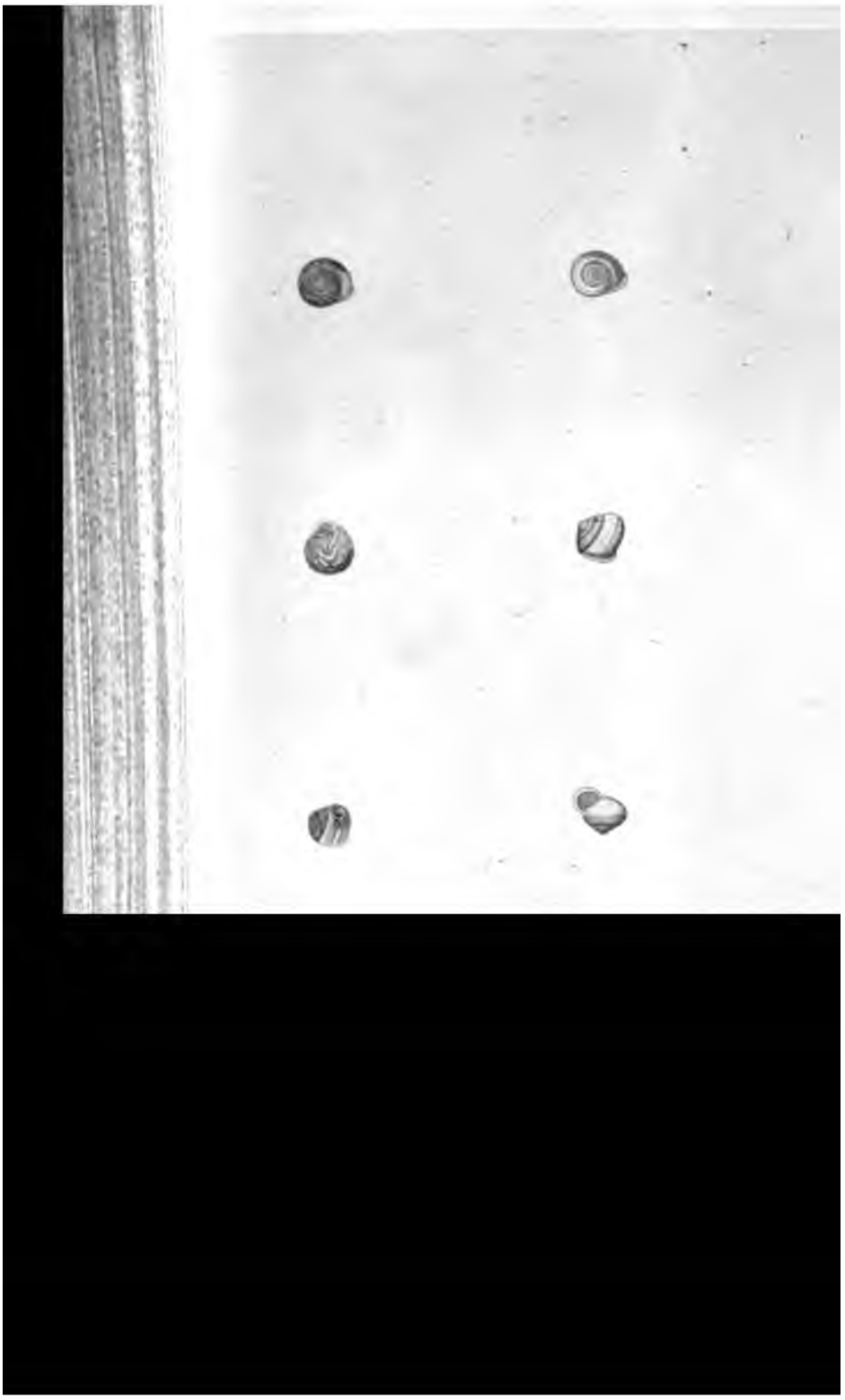






Cyclostoma dentatum. Say





Helicina orbiculata. Say

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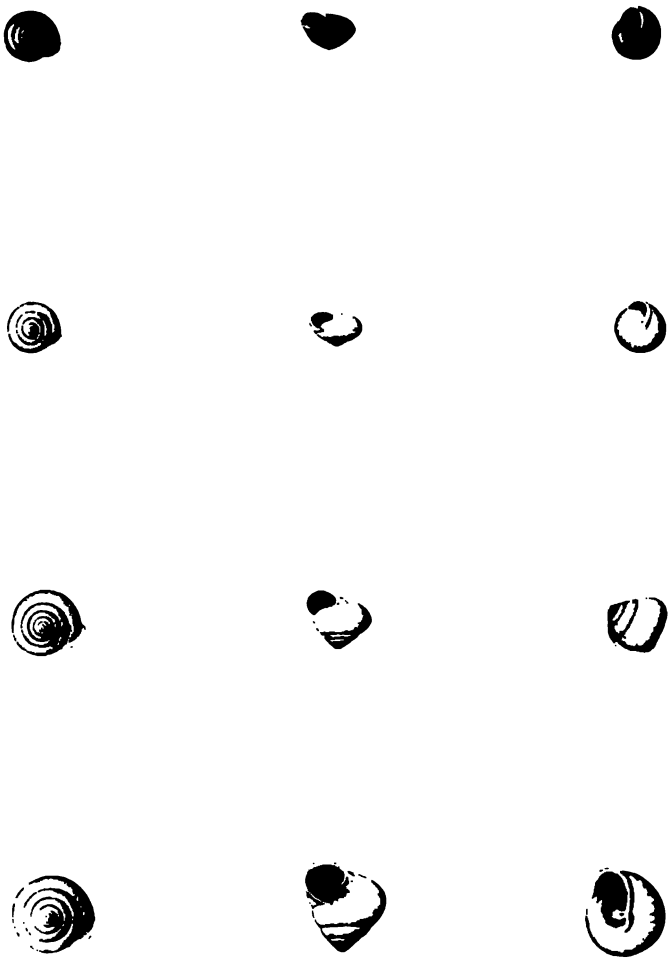
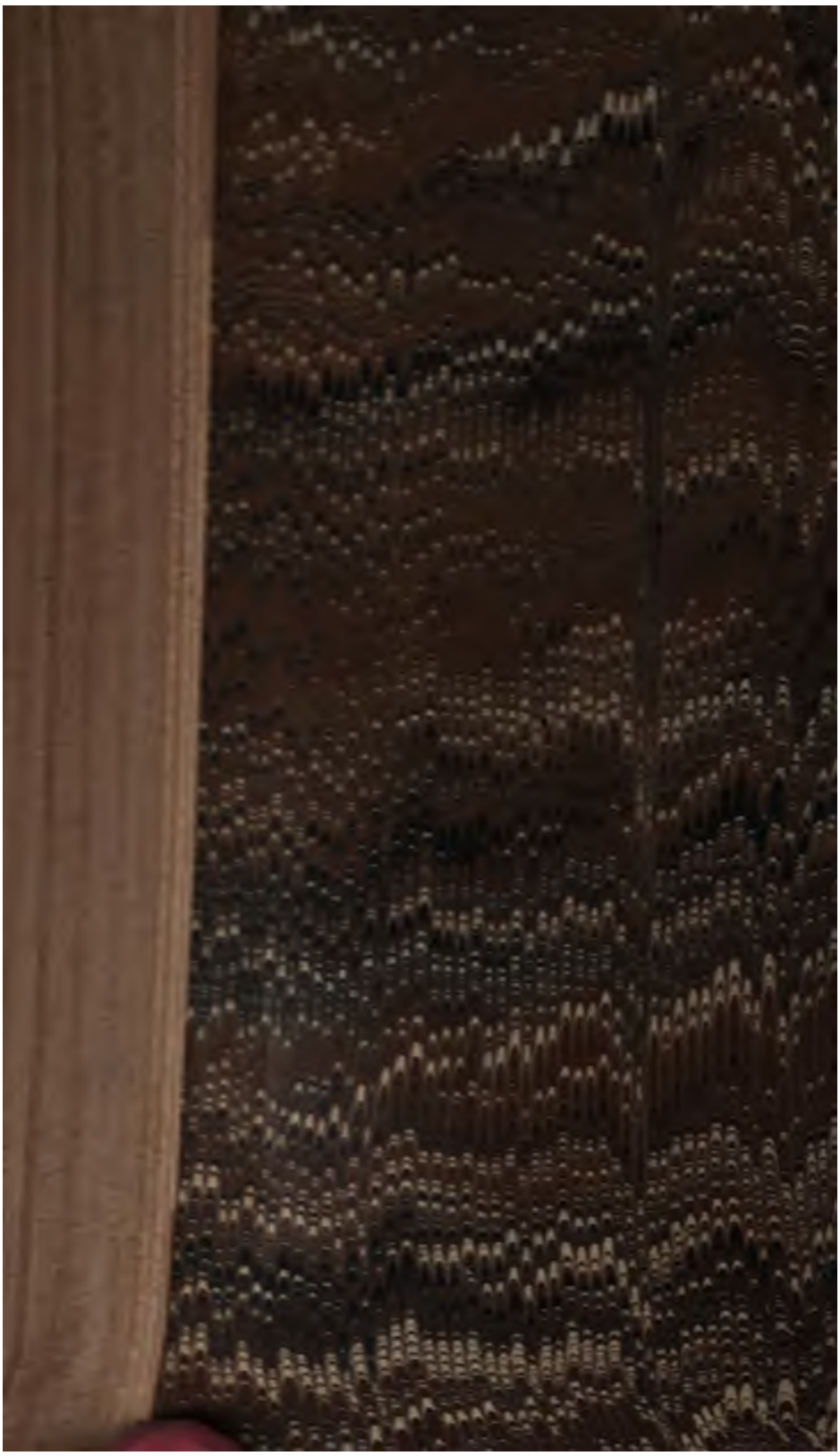


Helecina rubella, Lamk
occulta, Sav

Helecina orbiculata, Sav
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